United States Department of Agriculture

NRCS

Natural Resources Conservation Service

In cooperation with United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; Oregon State University, Agricultural Experiment Station; and Benton County Soil and Water Conservation District

Soil Survey of Benton County, Oregon

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

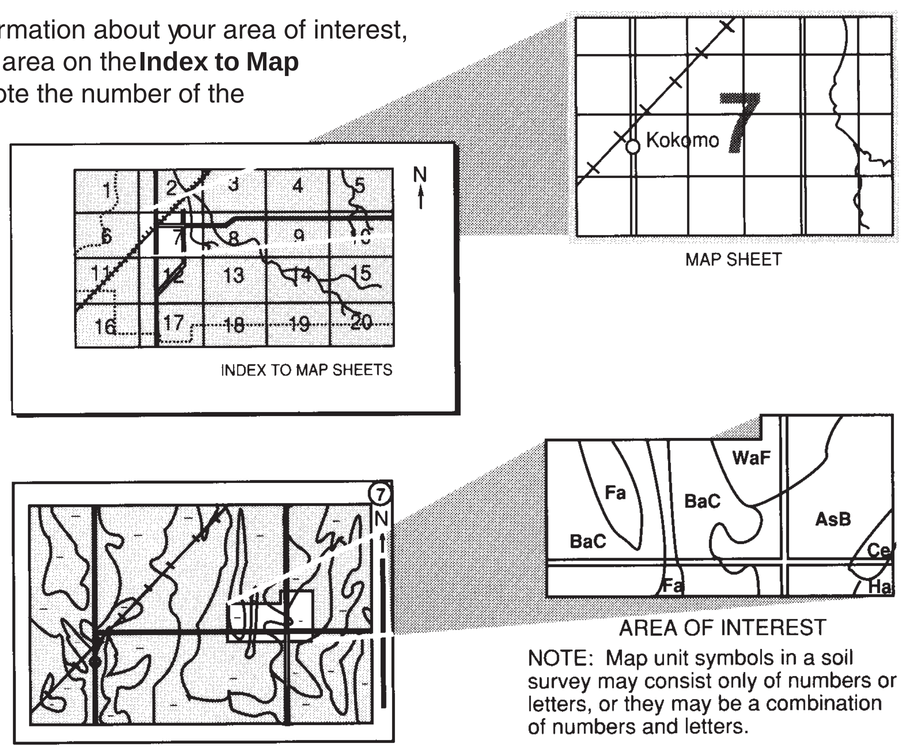
To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.



MAP SHEET

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; Oregon State University, Agricultural Experiment Station; and Benton County Soil and Water Conservation District. The survey is part of the technical assistance furnished to the Benton County Soil and Water Conservation District.

Major fieldwork for this soil survey was completed in 2003. Soil names and descriptions were approved in 2004. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2004. The most current official data are available on the Internet.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Since the publication of this survey, more information on soil properties may have been collected, new interpretations may have been developed, or existing interpretive criteria may have been modified. The most current soil information and interpretations for this survey are in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The soil maps in this publication are in digital form. The digitizing of the maps was completed in accordance with the Soil Survey Geographic (SSURGO) database standards. The digital SSURGO-certified maps are considered the official maps for the survey area and are part of the FOTG at the local field office of the Natural Resources Conservation Service.

Nondiscrimination Statement

Cover Caption

View of survey area looking west toward Marys Peak in distance. Christmas trees in foreground are on Santiam soils Jory, Bellpine, and Gelderman soils are on Decker Ridge at left in distance and on low hills in areas of rural homesite development. Caterl, Laderly, Murtip, and Valsetz soils are dominant on the steep, east-facing slopes of Marys Peak, and Mulkey soils are in the open grassland areas on summit of peak.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Issued January 2009

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

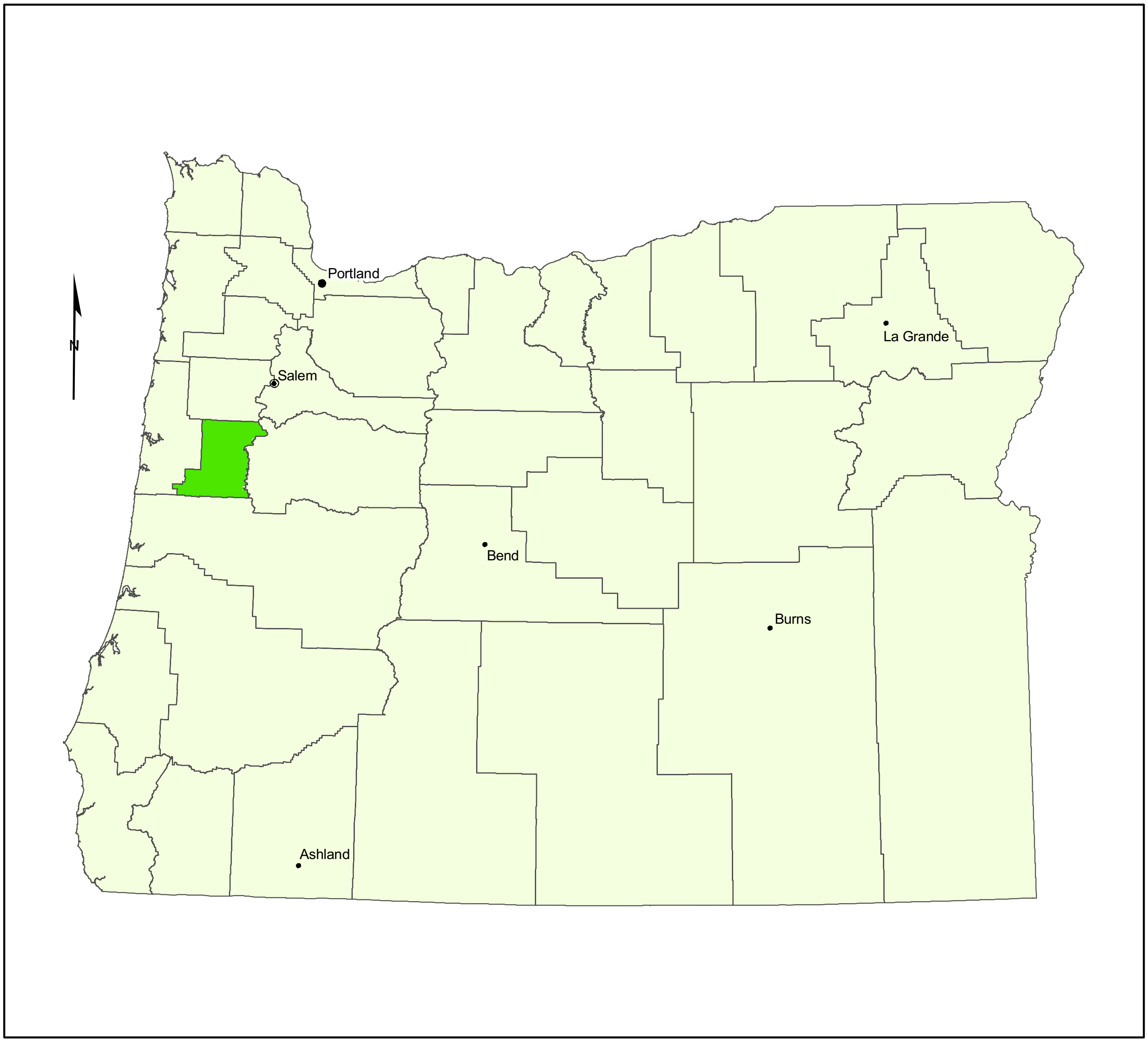
Soil surveys are designed for many different users. Farmers, ranchers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Bob Graham
State Conservationist
Natural Resources Conservation Service



Location of Benton County in Oregon.

Soil Survey of
Benton County, Oregon

By Matthew H. Fillmore, Natural Resources Conservation Service

Fieldwork by Matthew H. Fillmore, David R. Johnson, and Kelley D. Paup-Lefferts, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; Oregon State University, Agricultural Experiment Station; and Benton County Soil and Water Conservation District

Benton County is in the west-central part of Oregon. Corvallis, the county seat, has a population of about 79,000, ranking it eleventh among the 36 counties in Oregon (USDC, 2000). The total extent of the survey area is 434,521 acres, or about 679 square miles. Of this, about 332,000 acres, or about 519 square miles, is private land; 82,500 acres, or about 129 square miles, is Federal land; and about 20,000 acres, or about 31 square miles, is land administered by the State. Of the Federal land, about 59,000 acres is managed by the Bureau of Land Management, 18,000 acres by the Forest Service, and 5,500 acres by the Fish and Wildlife Service (Loy and others, 2001).

The survey area is in two major land resource areas—the Northern Pacific Coast Range, Foothills, and Valleys, and the Willamette and Puget Sound Valleys (USDA, 2006). The Willamette River flows in a northerly direction through the Willamette Valley and is the eastern boundary of the county. The part of the county in the Willamette Valley consists of alluvial flood plains, stream terraces, broad lacustrine terraces of the main valley floor, low rolling hills above the valley floor, and foothills along the western margin of the valley. The foothills merge with the sharply dissected, forested mountains of the Coast Range in the western part of the county.

The eastern part of the survey area is dissected by Muddy Creek and Long Tom River and by the Marys River to a lesser extent. The Luckiamute River flows into the county, through Kings Valley, and back out again before joining the Willamette River north of the county. Most of the Marys River flows through the Coast Range in a generally northwest to southeast direction until it is joined by Muddy Creek south and east of Philomath, where it continues in a northeasterly direction until its confluence with the Willamette River at Corvallis.

The western part of the county is drained by tributaries of the main stem of the Alsea River and the North Fork and South Fork of the river and by Lobster Creek in the southwestern corner of the county. Elevation ranges from about 180 feet near Albany to about 4,100 feet on Marys Peak, the highest point in the Oregon Coast Range.

Three older surveys have been completed for all or part of Benton County. The soil survey of Benton County, Oregon," was published in 1920 (USDA, 1924). The soil survey of Alsea Area, Oregon, was published in 1973 (USDA, 1973). It covers all of

the land within the Alsea River watershed, including the southwestern part of Benton County. The soil survey of Benton County Area, Oregon, was published in 1975 (USDA, 1975). It covers the entire county except the Alsea Area. In 2000 an interim soil survey was completed for Camp Adair, Oregon, a rifle range, in cooperation with the Department of the Army, Oregon Army National Guard (USDA, 2000). This present survey updates these earlier surveys and provides maps that show the soil map units in greater detail and includes additional information to meet the current needs of the users.

General Nature of the Survey Area

This section provides general information about the survey area. It describes history and development; natural resources; physiography, relief, and drainage; biotic systems; farming; forestland; and climate.

History and Development

The Willamette Valley was settled in the mid-1800's. The first person to officially file a land claim in what is now Benton County was Joseph C. Avery in 1845. He settled on his property, which was on the north side of Marys River where it flows into the Willamette River, in 1846. In the winter of 1847 to 1948, he began to lay out a townsite, which initially was known as Little Fields. Shortly thereafter, this area became known as Marysville, which Avery named after Mrs. Mary Stewart, an early settler and first white woman in the area (McArthur, 1982). The early immigrants to the county found fertile land, an almost inexhaustible supply of timber, a mild climate, and an abundant water supply. They occupied the level, treeless valley floor, which provided an abundance of grass and wild hay (USDA, 1924). Areas of the main valley as well as the tributary stream valleys were inhabited by generally peaceful Native Americans, who pastured livestock on patches of open, treeless prairie. The number of settlers soon increased, with some of the more hardy ones venturing into the mountainous areas. Large numbers of land claims were filed, with the highest number in 1847 (Longwood, 1940). Benton County was created from Polk County by an act of the Provisional Government of Oregon on December 23, 1847. It became the seventh county in the Territory of Oregon and was named after Senator Thomas Hart Benton of Missouri, a longtime advocate of the development of the Territory. The county was created out of an area originally inhabited by the Kalapuya Indians and later also by the Klickitat tribe. All Native American claims to land within the county were ceded to the United States in the Treaty of Dayton, Oregon Territory, in 1855. When the county was established, the boundaries began at the intersection of Polk County and the Willamette River and extended as far south as the California border and as far west as the Pacific Ocean. Portions of Benton County later became Coos, Curry, Douglas, Jackson, Josephine, Lane, and Lincoln Counties, leaving it in its present state with 679 square miles of land area in central Willamette Valley (Loy and others, 2001; Turnbaugh, 2004).

When the first pioneers arrived in what is now Benton County, two Native American tribes were present—the Kalapuya Indians, who had inhabited the area for many centuries, and the Klickitat Indians, who had migrated from the Klickitat Valley in the eastern part of the Washington Territory in the early 1700's (Longwood, 1940). The Klickitat Indians were gregarious by nature, living in villages with permanent lodges. After the Treaty of Dayton was adopted, a majority of the Klickitat tribe returned to land they had previously inhabited in the Washington Territory. The Kalapuya Indians were semi-nomadic. They lived in permanent homes in winter and traveled throughout the Willamette Valley area foraging for camas and wapato, fishing for salmon, and hunting deer, elk, and waterfowl during the rest of the year (Zenk, 1990). Each year

the Kalapuya people burned the grassland to stimulate growth of their preferred food sources. This practice of annually burning the prairies produced fires of relatively low heat intensity, which effectively removed the current season's growth and stimulated the grasses to produce sheaths or stems and begin the process of regrowth. As more and more settlers arrived in the valley, this practice was discouraged and then completely discontinued. In 1956 an attempt was made to relocate the Kalapuya tribes along with survivors from other interior western Oregon groups, such as the Clackamas, Molalla, Umpqua, Rogue (Takelma), Chetco, Coquille, Shasta, Tututni, and Chasta Costa Indians, to the Grande Ronde Reservation in Yamhill County or to the Coast (Siletz) Reservation at Siletz Agency, in what is now Lincoln County. This attempt failed, however, because many of them had returned to their original land (Longwood, 1940; Loy and others, 2001).

After the gold rush ended in 1850, rapid development of Benton County began. In 1851, the city of Marysville became the county seat. The name of the city was changed to Corvallis in 1853 to eliminate confusion with the town of Marysville, California. J.C. Avery named the town by combining Latin words to mean "heart of the valley" (McArthur, 1982). The first road in the county opened in 1852. The first county courthouse was constructed in 1854. A second courthouse was built in 1889, and it is the oldest one in Oregon that is still used for its original purpose (fig. 1). It was extensively renovated in 1976 to restore and preserve the historic character and features of the building (Turnbaugh, 2004). By the time of statehood in

Figure 1.—Benton County Courthouse.

1859, Benton County had 2,479 residents. According to the 1860 census, Benton County had a population of more than 3,000 residents and 748 voters (USDA, 1975; USDC, Decennially 1860-2000). In 1868, the Oregon Legislative Assembly designated a 10-year-old sectarian school, Corvallis College, as the Agricultural College of the State of Oregon for the promotion of agriculture and mechanical arts (Onstad, 1975). Over the years the name of the institution has changed from Oregon Agricultural College (1890's to 1927), to Oregon State Agricultural College (1927 to 1937), to Oregon State College (1937 to 1961), and finally to Oregon State University (1961 to present) (Appleby, 2002).

The end of the pioneer era was marked by the arrival of the railroad in 1879. For many years the Willamette River provided water transportation for passengers and freight by shallow-draft vessels such as stern-wheeled steamers as far south as Eugene. Oregon's first north-south railroad was built in the late 1860's and early 1870's, and by 1872 it extended from Portland to Roseburg. A number of other lines were built in the 1870's and 1880's, including a line from Corvallis to Yaquina City, near present-day Newport (Loy and others, 2001). By the mid-1880's, passenger trains provided much faster and generally more reliable year-round transportation; they replaced steamboats and other modes of transport as the preferred method of travel (Onstad, 1975).

The Southern Pacific Railroad and Oregon Electric Railroad furnished transportation to Portland to the north and to California to the south. These railroads played an important role in the development of agriculture and the timber industry in the county. They serviced the county and the surrounding areas for many years before being largely discontinued as a result of economic considerations and improved road systems. Good highways connect all of the communities and cities in the county. Freight service is provided by trucking companies throughout the county. Corvallis Municipal Airport provides passenger and commercial freight airline services.

Other towns in the county were developed because of nearby sawmills and flour mills, including Alsea, Kings Valley, and Monroe; because of their importance for transportation, including Corvallis, Monroe, and Wren, which were near major waterways or along rail lines; as military establishments, including Fort Hoskins (now Hoskins) and Camp Adair (now Adair Village), which are former military installations; or because of their proximity to educational institutions, including Corvallis and Philomath. Fort Hoskins was established in 1856 as a result of the Treaty of Dayton. Camp Adair was built in 1942 to 1943 as a training center for troops of four infantry divisions during World War II. During the war, Camp Adair had a population of more than 30,000 and was considered a city (the second largest in Oregon for some time) because of its size and facilities. More than 100,000 troops received military training at Camp Adair (Camp Adair Exhibit, 2004). Camp Adair was dismantled after the war. Today agricultural fields have replaced the military training fields and few structures remain to testify to the existence of this former base.

In 1900 the population of the county was 6,706. The population increased to 41,100 in 1965 (USDA, 1975; USDC, Decennially 1860-2000) and to 78,153 in 2000 (USDC, 2000).

Today, Oregon State University (OSU), agriculture, forest products, research and development, high technology electronics, and vineyards and wineries form the economic base of the county. A substantial portion of the nation's research in forestry, agriculture, engineering, education, and science takes place at OSU (Turnbaugh, 2004). The establishment of Linn-Benton Community College has provided additional educational opportunities for many citizens.

Natural Resources

The natural resources of the county include water, minerals, soil, and timber. Clear mountain streams, such as the Alsea River, abound with many types of fish, and other streams, such as Rock Creek in the City of Corvallis watershed, provide water for domestic use. Many creeks and streams have potential as a source of hydroelectric power. Natural and manmade lakes enhance the recreational opportunities in the county. Wetlands, such as the Jackson-Frazier area in Corvallis and McFadden Marsh adjacent to Finley Wildlife Refuge, provide roosting habitat for geese as well as habitat for other waterfowl. Within the refuge are riparian ash forest, oak-conifer woodland, oak savanna, wet prairie, and upland prairie that provide habitat for wildlife and include rare native plants (http://www.audubonportland.org/issues/statewide/iba/summary/). The mountainous areas of the Coast Range are covered with dense stands of Douglas fir and western hemlock that provide habitat for many wildlife species, including game animals such as deer, elk, and bear and game birds such as grouse. Intrusive volcanic outcroppings are a good source of rock for construction of highways and forest roads. Many rock quarries are throughout the county. Some of the rock is used for construction of highway embankments or as riprap to protect eroding streambanks (Schlicker and others, 1978). Areas adjacent to the Willamette River provide some of the most important sources of sand and gravel for construction. These areas commonly are abandoned river meanders, such as that at Fischer Island east of Corvallis (Bela, 1979).

Physiography, Relief, and Drainage

Benton County has two distinct physiographic regions—the Willamette Valley and the Coast Range Mountains. The Willamette Valley portion has an aerial extent of approximately 394 square miles. It consists mainly of broad alluvial and lacustrine terraces and low hills ranging westward and converging with dissected foothills along the western margin of the valley. These foothills merge with the Coast Range Mountains and are drained by the Luckiamute and Marys Rivers and numerous small streams that flow eastward into the Willamette River drainage basin.

The Coast Range Mountains portion of the county covers an area of approximately 285 square miles. The mountains average about 1,200 feet in elevation and are deeply dissected by streams; thus, there are very few areas of gently rolling uplands. Marys Peak, near the western edge of the county, has an elevation of about 4,100 feet. The major streams that dissect the Coast Range Mountains in the southwestern portion of the county are the Alsea River and its two main tributaries, the North Fork and South Fork, and Lobster Creek, all of which are part of the Alsea River watershed, which ultimately drains into the Pacific Ocean.

In the Willamette Valley, the soils on flood plains along the Luckiamute, Marys, and Willamette Rivers and Muddy Creek, in the north-central and eastern parts of the county, are well drained to excessively drained, except those soils in sediment-filled remnant channels. The soils on terraces adjacent to the flood plains are well drained to poorly drained and have undulating bar-and-channel relief. These flood plain and terrace landforms adjacent to the Willamette River and other tributary streams are underlain by a variety of soft to semi-consolidated depositional material and are subject to flooding, a seasonal high water table, ponding, and streambank erosion.

The lower foothills around the western margin of the valley are underlain by soft to hard sedimentary rock, which has restricted permeability. Slopes generally are gently sloping to steep. These foothills are subject to earthflow and slumping, erosion, and

varying cut-slope stability. Northwest of Corvallis, submarine volcanic rock is associated with clay-rich soils that have a high shrink-swell potential, are subject to earthflow and slumping, are gently sloping to moderately sloping, and are prone to slope failure because of the steep and very steep, dissected landscape. Sedimentary rock in the Coast Range Mountains also is subject to slope failure because of the steep slopes (Bela, 1979).

The geology of the region is dominantly basalt (Siletz River Volcanics (fig. 2) and other intrusive igneous rock) and sedimentary rock (sandstone, siltstone, and mudstone of the Tyee (fig. 3), Flournoy, and Spencer Formations and others) (Schlicker and others, 1978). The hardness of the material has influenced the rate of landscape dissection; thus, the area is characterized by fairly stable soils on gently sloping summits and active soils on very steep side slopes that are subject to instability. Severe slumping has occurred in some areas of the Coast Range Mountains; these areas are characterized by steep headwalls and rolling slump blocks. The upper tributary valleys are narrow and have terraces of recent origin.

The United States Department of the Army, Corps of Engineers, has built a number of flood-control dams in Lane County, south of Benton County, on the Coast Fork and Middle Fork of the Willamette River, Fall Creek, Blue River, Row River, Hills Creek, and South Fork of the McKenzie River. In Linn County to the east, flood-control dams have been built on the North Santiam, Middle Santiam, and South Santiam Rivers. These structures have controlled flooding in the Willamette Valley to the extent that many areas that were active flood plains two decades ago are no longer subject to flooding (Langridge, 1987; Patching, 1987). The dams and other modifications of the river network by man have also contributed to the decline of native fish populations, particularly salmon. Operation of the dams has lowered peak flows in the river in winter and increased low flows in summer, significantly altering

Figure 2.—Siletz River Volcanics in an area of Jory-Nekia complex, 20 to 30 percent slopes.

Figure 3.—Sedimentary layers of the Tyee Formation.

the natural hydrological dynamics of the rivers and ultimately impacting the native fish runs (Hulse and others, 2002).

Biotic Systems

Environmental factors, such as soils, precipitation, and vegetative cover, and human-related factors, such as homesite development, have resulted in a variety of patterns across the landscape. Some patterns are the result of an interaction of these factors. For example, urban areas, grainfields, pastures, and second-growth forests are present as a result of human interaction with other factors such as topography, soil fertility, moisture availability, climate, and transportation networks. Despite the complexity of the overall mosaic of the landscape, recognizable trends and geographic or spatial frameworks can be defined and described in a meaningful way (Omernik and Gallant, 1989). A spatial framework describes regions that are more or less homogeneous areas where pattern variations within a region are fewer than those between regions (Hart, 1982).

Hydrologic units or watersheds were originally introduced as a spatial framework to facilitate water resource planning and management. Each zone in the framework is clearly defined by the drainage pattern of surface water. This framework is widely used in natural resource management (Hulse and others, 2002).

Another type of spatial framework is based on ecoregions, or ecologically distinct areas, that arise from an interaction of different environmental resources, ecosystems, and human activities (Omernik, 1995). Ecoregions, as defined by the U.S. Environmental Protection Agency (EPA), include causal and integrative components of physiography, geology, soil, climate, potential vegetation, land use, and land cover, each of which figures differently in importance from one place to

another. There are 15 Level I ecoregions in North America, and these are subdivided into 51 Level II ecoregions and 99 Level III ecoregions (Commission for Environmental Cooperation, 1997). Level IV ecoregions have been delineated at a scale of 1:250,000 (Pater and others, 1998).

Ecoregions do not conform to watershed boundaries. For example, the Willamette River Basin, a hydrologic spatial framework, contains the Level III Willamette Valley ecoregion and parts of the Coast Range and Cascades ecoregions (Hulse and others, 2002).

Level III ecoregions in Benton County include the Coast Range Mountains and the Willamette Valley. Level IV ecoregions within the Coast Range Mountains include Volcanics and Mid-Coastal Sedimentary eroregions. In the Willamette Valley, the Level IV ecoregions include the Willamette River and Tributaries Gallery Forest, Prairie Terraces, and Valley Foothills ecoregions.

A strong relationship exists between physiography and ecoregions. The Willamette River and Tributaries Gallery Forest ecoregion occupies the Willamette River flood plain (fig. 4). This ecoregion contains deep, fertile, silty soils and supports riparian forests of cottonwood, alder, Oregon ash, bigleaf maple, and Douglas fir. It is surrounded by the Prairie Terrace ecoregion, which covers the remainder of the wide valley floor and lies on relatively flat fluvial terraces. This ecoregion supports a natural plant cover of Oregon white oak, Oregon ash, and Douglas fir. Historically, wet and dry prairie vegetation as well as savanna covered this area. It is now used for agriculture and some urban and rural development. The Valley Foothills ecoregion is on the foothills, along the edges of the valley floor. Oregon white oak and madrone grow in the drier areas, and Douglas fir and some western redcedar grow in the more moist areas. Contemporary land use includes forestland, orchards, vineyards, Christmas tree farms, and rural homesite development. The geology of this area

Figure 4.—Typical vegetation of the riparian Gallery Forest in an area of Waldo silty clay loam, 0 to 3 percent slopes.

includes igneous (basalt) and sedimentary (sandstone) rock, which contrasts the glacial and fluvial deposits of the two ecoregions of the valley floor. Both Level IV ecoregions in the Coast Range Mountains support highly productive conifer forests of Douglas fir, western hemlock, and western redcedar interspersed with alder and maple. Forestry, recreation, and pastureland (on the stream terraces in the tributary river valleys) are the dominant land uses (Hulse and others, 2002).

Farming

Farming in the county is primarily in the valleys and lower foothills. The fertile soils and long growing season in the Willamette Valley make this area one of the most important agricultural areas in Oregon. In 1992 about 45 percent of the total market value of all agricultural products in Oregon was produced in the Willamette Valley (Hulse and others, 2002). In 1997 the average size of a farm/ranch in the county was 180 acres (Loy and others, 2001). The flood plains are used for cash crops, such as snap beans, sweet corn, mint, strawberries, dill, carrots, nursery crops, and other similar crops. The soils on terraces are used for many of the same crops as are the soils on flood plains, but these soils are also used for grass seed production. Grass seed has become the main crop grown on the poorly drained soils on the broad terrace of the main valley floor. Dairy cattle, beef cattle, and sheep are raised on the valley terraces, high terraces, and foothills and in tributary stream valleys. Fruit and nut orchards are mainly on well drained terraces and low hills. Wheat, oats, barley, hay, and pasture are grown throughout the Willamette Valley. Christmas tree farming is a major industry in the county, occurring mainly in areas of the better drained soils in the valleys, on the low hills, and on the foothills in the Coast Range. Vineyards and wineries have become a significant commodity within the agricultural marketplace in the last decade. Irrigation water for farm crops commonly is pumped from wells or from nearby streams.

Forestland

Approximately 60 percent of the survey area is forestland. Douglas fir is the most abundant forestland species. Other species that are of commercial importance are western hemlock, western redcedar, red alder, ponderosa pine, grand fir, and noble fir. Occasional stands of Oregon white oak, bigleaf maple, red alder, and golden chinkapin are harvested for specialty purposes such as furniture. Most of the forestland in the county is under the management of the Forest Service, Bureau of Land Management, or large industrial forest products companies. The Oregon State Department of Forestry regulates many of the forestland practices used within the county. Small forestland owners can receive help and guidance in managing forestland from specialists at the Natural Resources Conservation Service, Cooperative Extension Service, and Oregon State Department of Forestry.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at the Hyslop Farm climate station at Oregon State University in Corvallis, Oregon, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season. Precipitation ranges used in this survey are derived in part from climate maps produced by the Spatial Climate Analysis Service at Oregon State University in collaboration with the National Water and Climate Center. The Parameter-elevation

Regression on Independent Slopes Model (PRISM) system was used to derive the latest, high-resolution digital climate coverages for the United States (Daly and others, 1994). Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from data recorded at the First Order station in Eugene, Oregon.

In winter, the average temperature is 40.9 degrees F and the average daily minimum temperature is 34.3 degrees. The lowest temperature on record, which occurred at Corvallis on December 8, 1972, was -7 degrees. In summer, the average temperature is 64.5 degrees and the average daily maximum temperature is 78.4 degrees. The highest temperature, which occurred at Hyslop Farm on August 10, 1981, was 108 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation at Hyslop Farm is 43.65 inches. Of this, about 12.53 inches, or 29 percent, usually falls in April through October. The growing season for most crops falls within this period. Precipitation is much higher in the western part of the county, particularly in the Coast Range. It ranges from about 50 inches in the western part of Corvallis to more than 100 inches at the highest elevations in the Coast Range. Most of the western part of the county receives 70 to 90 inches of precipitation annually, and areas in the Willamette Valley receive 40 to 50 inches. The heaviest 1-day rainfall during the period of record at Hyslop Farm was 4.45 inches on November 19, 1996. Thunderstorms occur on about 4 days each year. They can occur any time of the year, but they are slightly more likely to occur in May through August.

The average seasonal snowfall at Hyslop Farm is 4.8 inches. The greatest snow depth recorded at any one time was 16 inches on January 28, 1969, and 10 inches on February 3, 1989. On average, 4 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall was 8 inches on January 26 and 27, 1969; the 3-day total snowfall from this greatest storm in the history of the county was 18 inches. The southern part of the county had more than 30 inches of snow on the ground from this storm. The amount of snowfall, mean snow depth, and days with snow are much higher in the Coast Range than at Corvallis. At an elevation of more than 3,000 feet, several feet of snow may fall during storms in winter and many feet of snow may stay on the ground for 2 to 3 months at a time during colder winters.

The average relative humidity in midafternoon is about 38 percent in July and 80 percent in December. Humidity is higher at night, and the average at dawn is about 90 percent throughout the year. The sun shines about 65 percent of the time in summer (75 percent in July) and 28 percent in winter. The prevailing wind is from the south in winter and from the north in summer. Average windspeed is highest, about 8 miles per hour, in March, but it averages more than 7 miles per hour year round except during October. Windspeed and wind direction are variable in the Coast Range and valleys.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the county. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile,

which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Survey Procedures

General procedures followed in preparing this soil survey are described in the National Soil Survey Handbook of the U.S. Department of Agriculture, Natural Resources Conservation Service (http://soils.usda.gov/technical/handbook/). Three earlier soil survey reports of all or part of this county were referenced in the development of this survey (USDA, 1924; USDA, 1973; USDA, 1975). Other reference material used is as follows:

- ”Reconnaissance Soil Survey of the Willamette Basin, Areas Outside of National Forests” (Thomas and others, 1969)
- Mapping of geomorphic surfaces (Balster and Parsons, 1968 and 1969; Gelderman and Parsons, 1972; Glasmann and Kling, 1980; Glasmann and others, 1980; Parsons, 1979; Parsons and others, 1968 and 1970; Parsons and Herriman, 1970; Reckendorf, 1993)
- Research papers on soils in the Willamette Valley (Parsons and Balster, 1966 and 1967; Parsons and others, 1973; Rojanasoonthon, 1963)
- Mapping of Quaternary geologic units (J.E. O’Connor and others, 2000)
- ”Geology of Oregon” (Orr and Baldwin, 2000)
- ”Soil Resource Inventory, Siuslaw National Forest” (Badura and others, 1974)
- Reconnaissance geologic maps with accompanying texts issued by the State of Oregon, Department of Geology and Mineral Industries (Bela, 1979; Schlicker and others, 1973, 1974, and 1978)
- Reconnaissance geologic maps with accompanying texts issued by the U.S. Department of the Interior, Geological Survey (Baldwin, 1955; Snavely and others, 1976; Vokes and others, 1954; Walker and MacLeod, 1989 and 1991)
- ”Landforms and Land Types of the Oregon Coast Range” (Ellis-Sugai and others, 1997)
- Publications and maps pertaining to vegetation, plant associations, land resource areas or provinces, and precipitation (Anderson and others, 1998; Daly and others, 1994; Franklin and Dyrness, 1973; Hubbard, 1991; Juday, 1976; Loy and others, 2001; McCain and Diaz, 2002; Pater and others, 1998; Taylor and others, n.d.; Thorson and others, 2003; USDA, 2006; USDA, 2004)
- Flood Insurance Rate Maps of Benton County, Oregon” published by the Federal Emergency Management Agency (FEMA, 1986)

This survey was begun in September 1994. It updates the soil survey of Benton County Area, Oregon, published in 1975. This survey covers all of Benton County, including the Alsea watershed, which was not included in the earlier survey. The survey was mapped at a scale of 1:24,000 using U.S. Department of the Interior, Geological Survey, 7.5-minute topographical quadrangles and high altitude black and white aerial photographs. The topographical quadrangles were used to help identify steepness of slope and aspect. The aerial photographs were used to identify tonal patterns of vegetation, which represent changes in soil characteristics. Soil scientists used these tools along with field observations and excavations to develop a landscape model. The geology, vegetation, landforms, and climate of the soils were used to predict soils and delineate soil map unit polygons. The soil-vegetation-landform relationship is discussed in more detail in the “Soil Formation” section.

This survey was mapped at two levels of intensity. A higher level of detail was used to map the soils of flood plains, stream terraces, broad lacustrine valley terraces, and low foothills. These areas are under increasing pressure for rural and urban development; thus, a higher level of detail was needed. Photo-interpretation and field

investigation were conducted at an intensity to detect a map unit polygon of a minimum size of 5 acres. About 43 percent of the county was mapped at this level of detail.

A less intensive level of detail was used to map the soils of the higher foothills and mountainous areas. The soils in these areas are not under as much pressure for changes in land use as are those of the lower foothills, terraces, and flood plains. The soils of the higher foothills and mountainous areas are used for timber production, livestock grazing, watersheds, recreation, and fish and wildlife habitat. Photo-interpretation and field investigation generally were conducted at an intensity to detect a map unit polygon of a minimum size of about 40 acres; however, polygons as small as 15 acres were identified in areas of highly contrasting soils. About 57 percent of the survey area was mapped at this level of detail.

At both levels of detail of mapping, characteristics of the soils are determined by transecting the map unit polygons. Transects were made by soil scientists to determine the kinds and composition of soils. Transects were oriented to cross drainage patterns on the landscape, as these patterns commonly provide the most information about the variation and pattern of soils. Tonal patterns on aerial photographs were used to predict and delineate preliminary soil map unit polygons; however, composition of the soils in each map unit was determined in the field by making observations and excavations. The map units consist of major components and dissimilar minor components. Major soil components and similar soil components make up a significant percentage of the soils in a map unit. The major components are used to name a map unit. Dissimilar minor soil components make up a lower percentage of a map unit, but they are important for use and management of the major soil components. Dissimilar minor components have also been referred to as map unit inclusions. Similar soils are those that have slightly different properties from the major components, but the management needs and productivity are similar. The major and dissimilar minor soil components are described in the “Detailed Soil Map Units” section.

This soil survey is in two Major Land Resource Areas (MLRAs)—Northern Pacific Coast Range, Foothills, and Valleys (MLRA 1) and Willamette and Puget Sound Valleys (MLRA 2) (USDA, 2006). An MLRA is a broad geographical region that has similar soils, climate, vegetation, and geology, and other similarities in natural resources. Soil map units are unique to an MLRA; however, a map unit can extend across several County and even State political or administrative boundaries. These political or administrative boundaries seldom are coincident with the soil map unit boundaries. Thus, a soil series, such as the Jory series, and its associated map units can occur in more than one soil survey area. Where this occurs, the typical pedon for the series can be anywhere within the MLRA. For example, the Jory series and its typical pedon and soil map units are in MLRA 2. The typical pedon for this series is in Marion County, Oregon.

Soil-vegetation relationships and productivity were key factors in the development of the map units and soil components. Foresters, soil scientists, and soil conservation technicians assisted in measuring the potential for timber production at representative forested sites. Foresters and ecologists correlated existing vegetation into potential plant communities, and soil scientists assisted by grouping these plant communities into broader associations based on specific soil characteristics, such as presence of a layer of clay, drainage class, and depth to bedrock. Soil conservationists, Oregon State University Extension Service agents, and Earth Team volunteers assisted in collecting yield data for specialty crops and forage. The data were then correlated with the kinds of soil in the map units and the site characteristics of the units. The data were also used in the Agricultural Soil Productivity Model to predict the performance of the map units.

Samples for chemical and physical analysis were taken from pedons of the major

soils in the county. The analyses were made by the U.S. Department of Agriculture, National Soil Survey Laboratory, in Lincoln, Nebraska, and by the Oregon State University, Department of Crop and Soil Science, Central Analytical Laboratory, in Corvallis, Oregon. The results were used in classifying the soils, determining soil properties and characteristics, and making various interpretations for engineering, agricultural, and other land uses.

More detailed information about the soils and about agriculture and forestry is given in the “General Soil Map Units,” “Detailed Soil Map Units,” “Crops and Pasture,” and “Forestland Productivity and Management” sections of this publication.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soils on Flood Plains and Alluvial Fans in the Willamette Valley

Number of map units: 2
Percentage of survey area: 14 percent

1. Chehalis-Newberg

Nearly level, well drained and somewhat excessively drained, very deep soils that formed in silty, loamy, and sandy alluvium

Major landform: Flood plains
Percentage of survey area: 8 percent
Slope: 0 to 3 percent
Elevation: 30 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Cloquato, Camas, Chapman, McBee, Wapato, and Pilchuck soils, Fluvaquents, Fluvents, and Riverwash
Present use: Irrigated cropland

2. Waldo-Coburg, rare flooding-McAlpin

Nearly level to gently sloping, poorly drained and moderately well drained, very deep soils that formed in clayey and loamy alluvium

Major landforms: Flood plains, terraces, and alluvial fans (fig. 5)
Percentage of survey area: 6 percent

Figure 5.—Area of general soil map unit 2 in background. Area of general soil map unit 8 in right foreground and unit 5 at left Foothills of the Cascade Mountains in distance.

Slope: 0 to 6 percent
Elevation: 100 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Malabon, rare flooding; Bashaw, flooded; Abiqua; McAlpin, rare flooding; McBee, nonflooded; Abiqua, rare flooding; and Verboort soils; Aquents; and Riverwash
Present use: Irrigated cropland

Soils on Flood Plains, Stream Terraces, and Alluvial Fans in the Alsea Valley and Other Tributary Stream Valleys in the Coast Range Mountains

Number of map units: 2
Percentage of survey area: 4 percent

3. Abiqua-Chehalis-Alsea, high precipitation

Nearly level to gently sloping, well drained to moderately well drained, very deep soils that formed in clayey, silty, and loamy alluvium

Major landforms: Flood plains, stream terraces, and alluvial fans (fig. 6)

Figure 6.—View of Alsea Valley. General soil map unit 3 in foreground, unit 10 under Douglas fir in midground, and unit 11 under Oregon white oak interspersed with Douglas fir in midground. Prairie Mountain in background.

Percentage of survey area: 1 percent
Slope: 0 to 5 percent
Elevation: 200 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days
Minor components: McAlpin, Chapman, Waldo, and Newberg soils, Fluvaquents, Fluvents, and Cloquato and Wapato soils
Present uses: Irrigated cropland, hayland, native and improved pasture for livestock grazing, and limited homesite development

4. Elsie-Nekoma-Meda

Nearly level to strongly sloping, well drained, very deep soils that formed in loamy and silty alluvium and alluvium mixed with colluvium derived from igneous and sedimentary rock

Major landforms: Flood plains, stream terraces, and alluvial fans
Percentage of survey area: 3 percent
Slope: 0 to 20 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F

Frost-free period: 140 to 210 days
Minor components: Treharne, Eilertsen, Zyzzug, Kirkendall, Quosatana, Chismore, Pyburn, and Wasson soils and Fluvaquents
Present uses: Cropland (Christmas tree production), hayland, native and improved pasture for livestock grazing, forestland, and limited homesite development

Soils on Terraces in the Willamette Valley

Number of map units: 4
Percentage of survey area: 13 percent

5. Conser-Malabon-Coburg

Nearly level, well drained, moderately well drained, and poorly drained, very deep soils that formed in clayey, loamy, and silty alluvium

Major landform: Broad valley terraces
Percentage of survey area: 3.5 percent
Slope: 0 to 3 percent
Elevation: 150 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Awbrig, Bashaw, and Salem soils
Present uses: Cropland, limited homesite development, and urban development

6. Dayton

Nearly level, poorly drained, very deep soils that formed in silty and clayey glaciolacustrine deposits

Major landforms: Broad valley terraces (fig. 7)
Percentage of survey area: 3 percent
Slope: 0 to 2 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Concord and Holcomb soils
Present uses: Cropland and limited homesite development

7. Woodburn-Willamette-Amity

Nearly level to steep, well drained to somewhat poorly drained, very deep soils that formed in silty glaciolacustrine deposits

Major landforms: Broad valley terraces and terrace escarpments
Percentage of survey area: 5 percent

Figure 7.—Area of general soil map unit 6 in the Willamette Valley.

Slope: 0 to 55 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Briedwell soils
Present uses: Irrigated cropland, homesite development, and urban development

8. Santiam

Nearly level to strongly sloping, moderately well drained, very deep soils that formed in silty glaciolacustrine deposits over clayey alluvium

Major landforms: Remnant valley terraces (fig. 8)
Percentage of survey area: 1.5 percent
Slope: 2 to 20 percent
Elevation: 250 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Chehalem, Linslaw, and Helvetia soils
Present uses: Cropland and homesite development

Figure 8.—Area of general soil map unit 8 used for Christmas trees in foreground. Area of unit 7 used for grass seed in midground, unit 10 under Douglas fir on hills, and unit 18 on Green Peak in background.

Soils Derived from Sedimentary Rock on Hills in the Willamette Valley

Number of map units: 2
Percentage of survey area: 12 percent

9. Willakenzie-Dupee-Wellsdale

Gently sloping to steep, well drained to somewhat poorly drained, moderately deep and very deep soils that formed in loamy and clayey colluvium and residuum derived from sandstone and siltstone

Major landforms: Hills
Percentage of survey area: 3 percent
Slope: 2 to 60 percent
Elevation: 170 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Helmick, Pengra, Steiwer, Chehulpum, Goodin, Hazelair, and Panther soils
Present uses: Cropland, forestland, and homesite development

10. Jory-Bellpine

Gently sloping to steep, well drained, moderately deep and very deep soils that formed in clayey colluvium and residuum derived from sandstone and siltstone

Major landforms: Hills
Percentage of survey area: 9 percent
Slope: 2 to 60 percent
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Minor components: Dupee soils
Present uses: Cropland, forestland, and homesite development

Soils Derived from Igneous Rock on Hills in the Willamette Valley and on Foothills and Low Elevation Mountains in the Coast Range

Number of map units: 2
Percentage of survey area: 18.5 percent

11. Dixonville-Gellatly-Witham

Gently sloping to steep, well drained and somewhat poorly drained, moderately deep and very deep soils that formed in clayey colluvium and residuum derived from basalt

Major landforms: Hills
Percentage of survey area: 5.5 percent
Slope: 2 to 60 percent
Elevation: 250 to 1,500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days
Minor components: Ritner, Witzel, and Philomath soils
Present uses: Cropland, forestland, and homesite development

12. Jory-MacDunn-Price

Gently sloping to very steep, well drained, deep and very deep soils that formed in clayey colluvium and residuum derived from basalt

Major landforms: Foothills and mountains (fig. 9)
Percentage of survey area: 13 percent
Slope: 2 to 90 percent
Elevation: 240 to 2,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days
Minor components: Gelderman, Ritner, Witzel, and Nekia soils
Present uses: Cropland, forestland, and homesite development

Figure 9.—Looking northeast across a typical area of general soil map unit 12 in foreground toward the community of Wren, which is in an area of general soil map unit 10. Cardwell Hills in background are also in an area of unit 12.

Soils Derived from Sedimentary Rock on Low and Middle Elevation Mountains in the Coast Range

Number of map units: 2
Percentage of survey area: 24 percent

13. Apt-Honeygrove-Peavine

Gently sloping to steep, well drained, very deep and moderately deep soils that formed in clayey colluvium and residuum derived from sandstone and siltstone

Major landforms: Mountains
Percentage of survey area: 10 percent
Slope: 3 to 60 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days
Minor components: McDuff soils
Present uses: Forestland and limited homesite development

14. Preacher-Bohannon-Digger

Gently sloping to very steep, well drained, deep and moderately deep soils that formed in loamy colluvium and residuum derived from sandstone and siltstone

Major landforms: Mountains
Percentage of survey area: 14 percent

Slope: 5 to 90 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days
Minor components: Slickrock, Remote, Umpcoos, Blachly, and Kilowan soils
Present uses: Forestland and limited homesite development

Soils Derived from Igneous Rock on Low and Middle Elevation Mountains in the Coast Range

Number of map units: 2
Percentage of survey area: 9 percent

15. Honeygrove-Shivigny

Gently sloping to steep, well drained, very deep soils that formed in clayey colluvium and residuum derived from basalt

Major landforms: Mountains
Percentage of survey area: 4 percent
Slope: 3 to 60 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days
Minor components: Peavine soils
Present uses: Forestland and limited homesite development

16. Hemcross-Klistan

Gently sloping to very steep, well drained, deep and very deep soils that formed in loamy colluvium and residuum derived from basalt

Major landforms: Mountains
Percentage of survey area: 5 percent
Slope: 3 to 90 percent
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days
Minor components: Formader, Harslow, and Kilchis soils and Rock outcrop
Present use: Forestland

Soils Derived from Sedimentary Rock on Middle and High Elevation Mountains in the Coast Range

Number of map units: 1
Percentage of survey area: 2 percent

17. Oldblue-Grassmountain-Chintimini

Gently sloping to very steep, well drained, very deep and deep soils that formed in loamy colluvium and residuum derived from sandstone and siltstone

Major landform: Mountains (fig. 10)
Percentage of survey area: 2 percent
Slope: 5 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days
Minor components: Fiverivers, Burntwoods, Blodgett, Lurnick, Maryspeak, and Luckiamute soils
Present use: Forestland

Soils Derived from Igneous Rock on Middle and High Elevation Mountains in the Coast Range

Number of map units: 1
Percentage of survey area: 3.5 percent

Figure 10.—Typical area of general soil map unit 17 in foreground. Unit 18 on Marys Peak in background. Mulkey soils are in area of open grassland on top of peak.

18. Laderly-Murtip-Caterl

Gently sloping to very steep, well drained, very deep to moderately deep soils that formed in loamy colluvium and residuum derived from basalt

Major landform: Mountains
Percentage of survey area: 3.5 percent
Slope: 3 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days
Minor components: Giveout, Romanose, Valsetz, Mulkey, Sevencedars, Yellowstone, Newanna, and Woodspoint soils
Present use: Forestland

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the county. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and dissimilar minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These typically are not specifically mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called dissimilar minor components. They generally are in small areas and could not be mapped separately because of the scale used. In most map units, the named dissimilar minor soils are in the soil legend as a named major soil component. In this survey, however, some map units identify a minor component that is not identified as a major component in the soil legend. These minor components are identified as a major component in the broader MLRA mapping area. More information is given in the section "How This Survey Was Made."

A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas of the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the major management limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a

series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Bashaw clay, flooded, 0 to 3 percent slopes, is a phase of the Bashaw series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Chintimini-Blodgett-Fiverivers complex, 30 to 60 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Riverwash is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1—Abiqua silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Abiqua and similar soils: 89 percent
Dissimilar minor components: 11 percent

Characteristics of Abiqua

Setting
Landform: Convex and linear areas of alluvial fans
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 1
Land capability subclass (irrigated): 1

Typical profile
A1—0 to 6 inches; silty clay loam
A2—6 to 15 inches; silty clay loam
BA—15 to 25 inches; silty clay loam
Bw1—25 to 36 inches; silty clay
Bw2—36 to 44 inches; silty clay
BC—44 to 60 inches; silty clay

Dissimilar Minor Components

Chehalem soils
Percentage of map unit: 5 percent
Landform: Concave areas of alluvial fans

Abiqua soils, rarely flooded
Percentage of map unit: 3 percent
Landform: Convex and linear areas of flood plains

Cove soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 1 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitations

Content of clay, shrink-swell potential

2—Abiqua silty clay loam, 3 to 5 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Abiqua and similar soils: 84 percent
Dissimilar minor components: 16 percent

Characteristics of Abiqua

Setting
Landform: Convex and linear areas of alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 3 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
A1—0 to 6 inches; silty clay loam
A2—6 to 15 inches; silty clay loam
BA—15 to 25 inches; silty clay loam
Bw1—25 to 36 inches; silty clay
Bw2—36 to 44 inches; silty clay
BC—44 to 60 inches; silty clay

Dissimilar Minor Components

McAlpin soils
Percentage of map unit: 7 percent
Landform: Concave areas of alluvial fans

Chehalem soils
Percentage of map unit: 5 percent
Landform: Concave areas of alluvial fans

Cove soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Abiqua soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Convex and linear areas of flood plains

Abiqua soils, cobbly surface
Percentage of map unit: 1 percent
Landform: Convex and linear areas of alluvial fans

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitations

Content of clay, shrink-swell potential

3—Abiqua silty clay loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Abiqua, high precipitation, and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Abiqua, High Precipitation

Setting
Landform: Linear to slightly convex areas of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave, linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Land capability subclass (irrigated): 2c

Typical profile
A1—0 to 6 inches; silty clay loam
A2—6 to 15 inches; silty clay loam
BA—15 to 25 inches; silty clay loam
Bw1—25 to 36 inches; silty clay
Bw2—36 to 44 inches; silty clay
BC—44 to 60 inches; silty clay

Dissimilar Minor Components

McAlpin soils, high precipitation
Percentage of map unit: 5 percent
Landform: Linear to slightly concave areas of stream terraces

Alsea soils
Percentage of map unit: 3 percent
Landform: Level to gently sloping areas of stream terraces

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, hayland and improved pasture, homesites, forestland, wildlife habitat

Major Management Limitations

Content of clay, shrink-swell potential, restricted permeability, low soil strength

4—Abiqua silty clay loam, high precipitation, 3 to 5 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Abiqua, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Abiqua, High Precipitation

Setting
Landform: Gently sloping, convex areas of alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Concave, linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from igneous and sedimentary rock
Slope range: 3 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
A1—0 to 6 inches; silty clay loam
A2—6 to 15 inches; silty clay loam
BA—15 to 25 inches; silty clay loam
Bw1—25 to 36 inches; silty clay
Bw2—36 to 44 inches; silty clay
BC—44 to 60 inches; silty clay

Dissimilar Minor Components

McAlpin soils, high precipitation
Percentage of map unit: 3 percent
Landform: Linear to slightly concave areas of stream terraces

Alsea soils
Percentage of map unit: 1 percent
Landform: Level to gently sloping areas of stream terraces

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, homesites, forestland, wildlife habitat

Major Management Limitations

Content of clay, shrink-swell potential, restricted permeability, low soil strength

5—Abiqua silty clay loam, rarely flooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Abiqua, rarely flooded, and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Abiqua, Rarely Flooded

Setting
Landform: Convex and linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent

Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
A1—0 to 6 inches; silty clay loam
A2—6 to 15 inches; silty clay loam
BA—15 to 25 inches; silty clay loam
Bw1—25 to 36 inches; silty clay
Bw2—36 to 44 inches; silty clay
BC—44 to 60 inches; silty clay

Dissimilar Minor Components

McAlpin soils, rarely flooded
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

McBee soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Riverwash
Percentage of map unit: 1 percent
Landform: Flood plains consisting of unstabilized channel sediment

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitations

Flooding, content of clay, shrink-swell potential

6—Alsea loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Alsea and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Alsea

Setting
Landform: Nearly level to gently sloping areas of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear, concave
Across-slope shape: Linear

Properties and qualities
Parent material: Loamy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 34 to 52 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap1—0 to 8 inches; loam
Ap2—8 to 12 inches; loam
AB—12 to 16 inches; clay loam
Bw1—16 to 25 inches; clay loam
Bw2—25 to 34 inches; clay loam
BC—34 to 52 inches; loam
C—52 to 67 inches; sandy loam

Dissimilar Minor Components

Abiqua soils, high precipitation
Percentage of map unit: 2 percent
Landform: Gently sloping, convex areas of stream terraces

McAlpin soils, high precipitation
Percentage of map unit: 2 percent
Landform: Gently sloping, concave areas of stream terraces

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, homesites, forestland, wildlife habitat

Major Management Limitations

Depth to saturated zone, low soil strength, seepage

7—Alsea loam, rarely flooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 250 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Alsea, rarely flooded, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Alsea, Rarely Flooded

Setting
Landform: Linear to slightly convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear, concave
Across-slope shape: Linear

Properties and qualities
Parent material: Loamy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 34 to 52 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap1—0 to 8 inches; loam
Ap2—8 to 12 inches; loam
AB—12 to 16 inches; clay loam
Bw1—16 to 25 inches; clay loam
Bw2—25 to 34 inches; clay loam
BC—34 to 52 inches; loam
C—52 to 67 inches; sandy loam

Dissimilar Minor Components

Abiqua soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of stream terraces

Chapman soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear areas of flood plains

Chehalis soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

McAlpin soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of stream terraces

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, homesites, forestland, wildlife habitat

Major Management Limitations

Rare flooding, depth to saturated zone, low soil strength, seepage

8—Amity silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Amity and similar soils: 94 percent
Dissimilar minor components: 6 percent

Characteristics of Amity

Setting
Landform: Concave and linear areas of terraces
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 16 to 22 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Available water capacity (entire profile): Very high (about 14.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silt loam
A—7 to 16 inches; silt loam
E—16 to 22 inches; silt loam
Bt1—22 to 28 inches; silty clay loam
Bt2—28 to 35 inches; silty clay loam
C—35 to 72 inches; silt loam

Dissimilar Minor Components

Dayton soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of terraces

Willamette soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of terraces

Huberly soils
Percentage of map unit: 1 percent
Landform: Concave areas of terraces

Major Uses

Cropland, urban development

Major Management Limitation

Depth to saturated zone

9—Apt-McDuff complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 350 to 1,400 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 150 to 210 days

Map Unit Composition

Apt and similar soils: 55 percent
McDuff and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Apt

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases

Downslope shape: Linear, concave
Across-slope shape: Linear
Aspect: All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sedimentary rock
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Plant community class: Moist—western hemlock/oxalis-swordfern (1907); wet—western hemlock/salmonberry (1908)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; silty clay loam
AB—6 to 11 inches; silty clay loam
Bt1—11 to 18 inches; silty clay
Bt2—18 to 27 inches; silty clay
Bt3—27 to 37 inches; clay
Bt4—37 to 51 inches; clay
BCt—51 to 66 inches; silty clay loam

Characteristics of McDuff

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear
Aspect: All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sedimentary rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Plant community class: Moist—western hemlock/oxalis-swordfern (1907); wet—western hemlock/salmonberry (1908)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; silty clay loam
A2—9 to 17 inches; silty clay loam
Bt1—17 to 23 inches; silty clay
Bt2—23 to 30 inches; silty clay
BCt—30 to 37 inches; silty clay
Cr—37 to 47 inches; weathered bedrock

Dissimilar Minor Components

Preacher soils
Percentage of map unit: 5 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Bohannon soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Slickrock soils
Percentage of map unit: 4 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Meda soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of alluvial fans
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Major Uses

Apt and McDuff—forestland, limited homesite development, recreation, wildlife habitat

Major Management Limitations

Apt and McDuff—slope, low soil strength
McDuff—depth to bedrock

10—Apt-McDuff complex, 30 to 50 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 350 to 1,400 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 150 to 210 days

Map Unit Composition

Apt and similar soils: 50 percent
McDuff and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Apt

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear
Aspect (representative): Northeast
Aspect (range): Southwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sedimentary rock
Slope range: 30 to 50 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Plant community class: Moist—western hemlock/oxalis-swordfern (1907); wet—western hemlock/salmonberry (1908)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; silty clay loam
AB—6 to 11 inches; silty clay loam
Bt1—11 to 18 inches; silty clay
Bt2—18 to 27 inches; silty clay
Bt3—27 to 37 inches; clay
Bt4—37 to 51 inches; clay
BCt—51 to 66 inches; silty clay loam

Characteristics of McDuff

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear
Aspect (representative): Northeast
Aspect (range): Southwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sedimentary rock
Slope range: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Plant community class: Moist—western hemlock/oxalis-swordfern (1907); wet—western hemlock/salmonberry-wet (1908)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; silty clay loam
A2—9 to 17 inches; silty clay loam
Bt1—17 to 23 inches; silty clay
Bt2—23 to 30 inches; silty clay
BCt—30 to 37 inches; silty clay
Cr—37 to 47 inches; weathered bedrock

Dissimilar Minor Components

Preacher soils
Percentage of map unit: 6 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Slickrock soils
Percentage of map unit: 5 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Bohannon soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Digger soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Remote soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Major Uses

Apt and McDuff—forestland, recreation, wildlife habitat

Major Management Limitations

Apt and McDuff—slope, low soil strength
McDuff—depth to bedrock

11—Aquents, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 350 feet
Mean annual precipitation: 40 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Aquents and similar soils: 97 percent
Dissimilar minor components: 3 percent

Characteristics of Aquents

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave
Across-slope shape: Concave

Properties and qualities
Parent material: Silty or clayey alluvium or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 10 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7w

Typical profile
A—0 to 10 inches; silt loam
Cg1—10 to 40 inches; silt loam
Cg2—40 to 60 inches; silty clay loam

Dissimilar Minor Components

Bashaw soils, nonflooded
Percentage of map unit: 1 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Witham soils
Percentage of map unit: 1 percent
Landform: Convex and linear areas of alluvial fans

Woodburn soils
Percentage of map unit: 1 percent
Landform: Convex areas of terraces

Major Use

Wildlife habitat

Major Management Limitations

Depth to saturated zone, ponding

12—Awbrig silty clay loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 180 to 600 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Awbrig and similar soils: 87 percent
Dissimilar minor components: 13 percent

Characteristics of Awbrig

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Silty and clayey alluvium derived from igneous and sedimentary rock or glaciolacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: 5 to 12 inches to abrupt textural change
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 2 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ap1—0 to 2 inches; silty clay loam
Ap2—2 to 7 inches; silty clay loam
2Btss1—7 to 18 inches; clay
2Btss2—18 to 29 inches; silty clay

2BCt—29 to 48 inches; silty clay loam
2C—48 to 60 inches; clay loam

Dissimilar Minor Components

Coburg soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of terraces

Bashaw soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Clackamas soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of terraces

Courtney soils
Percentage of map unit: 2 percent
Landform: Depressions of terraces

Holcomb soils
Percentage of map unit: 2 percent
Landform: Convex areas of terraces

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, content of clay, shrink-swell potential, ponding, shallow to abrupt textural change

13—Bashaw clay, 3 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bashaw, nonflooded, and similar soils: 89 percent
Dissimilar minor components: 11 percent

Characteristics of Bashaw, Nonflooded

Setting
Landform: Concave areas of alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches

Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): At the surface to a depth of 4 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
A—0 to 3 inches; clay
Bssg1—3 to 14 inches; clay
Bssg2—14 to 31 inches; clay
Bssg3—31 to 48 inches; clay
Cg—48 to 60 inches; clay

Dissimilar Minor Components

Witham soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of alluvial fans

Gellatly soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

Dixonville soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Abiqua soils
Percentage of map unit: 1 percent
Landform: Convex areas of alluvial fans

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

14—Bashaw clay, flooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 120 to 500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bashaw, flooded, and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Bashaw, Flooded

Setting
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 3 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
A—0 to 3 inches; clay
Bssg1—3 to 14 inches; clay
Bssg2—14 to 31 inches; clay
Bssg3—31 to 48 inches; clay
Cg—48 to 60 inches; clay

Dissimilar Minor Components

Waldo soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Bashaw soils, nonflooded
Percentage of map unit: 2 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Witham soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of alluvial fans

Wapato soils
Percentage of map unit: 1 percent
Landform: Concave areas of flood plains

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, content of clay, shrink-swell potential, ponding

15—Bashaw clay, nonflooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bashaw, nonflooded, and similar soils: 87 percent
Dissimilar minor components: 13 percent

Characteristics of Bashaw, Nonflooded

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 4 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
A—0 to 3 inches; clay
Bssg1—3 to 14 inches; clay
Bssg2—14 to 31 inches; clay
Bssg3—31 to 48 inches; clay
Cg—48 to 60 inches; clay

Dissimilar Minor Components

Witham soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of alluvial fans

Bashaw soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains

Gellatly soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

McAlpin soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of alluvial fans

Dixonville soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, ponding

16—Bashaw silty clay loam, nonflooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bashaw, nonflooded, and similar soils: 87 percent
Dissimilar minor components: 13 percent

Characteristics of Bashaw, Nonflooded

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Convex, linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Frequency of flooding: None
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 5 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
A1—0 to 5 inches; silty clay loam
A2—5 to 15 inches; silty clay
Bssg1—15 to 38 inches; clay
Bssg2—38 to 50 inches; clay
C—50 to 60 inches; clay

Dissimilar Minor Components

Witham soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of alluvial fans

Bashaw soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains

Gellatly soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

McAlpin soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of alluvial fans

Dixonville soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, ponding

17—Bellpine-Jory complex, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bellpine and similar soils: 68 percent
Jory, sedimentary bedrock, and similar soils: 24 percent
Dissimilar minor components: 8 percent

Characteristics of Bellpine

Setting
Landform: Convex and linear areas of hillslopes

Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Linear, convex
Across-slope shape: Convex, linear

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 6 inches; silty clay loam
BA—6 to 10 inches; silty clay loam
Bt1—10 to 20 inches; silty clay
Bt2—20 to 26 inches; paragravelly clay
Cr—26 to 36 inches; weathered bedrock

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Linear, convex, concave

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam

BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Dupee soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Rickreall soils
Percentage of map unit: 3 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Bellpine—content of clay, depth to bedrock
Jory—content of clay

18—Bellpine-Jory complex, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bellpine and similar soils: 51 percent
Jory, sedimentary bedrock, and similar soils: 42 percent
Dissimilar minor components: 7 percent

Characteristics of Bellpine

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Shoulders, backslopes, footslopes
Geomorphic position (three-dimensional): Base slopes, side slopes, nose slopes
Downslope shape: Concave, convex, linear
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 6 inches; silty clay loam
BA—6 to 10 inches; silty clay loam
Bt1—10 to 20 inches; silty clay
Bt2—20 to 26 inches; paragravelly clay
Cr—26 to 36 inches; weathered bedrock

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Linear
Across-slope shape: Concave, convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Dupee soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Rickreall soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Bellpine—content of clay, slope, depth to bedrock
Jory—content of clay, slope

19—Bellpine-Jory complex, 20 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bellpine and similar soils: 52 percent
Jory, sedimentary bedrock, and similar soils: 43 percent
Dissimilar minor components: 5 percent

Characteristics of Bellpine

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes, nose slopes
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 6 inches; silty clay loam
BA—6 to 10 inches; silty clay loam

Bt1—10 to 20 inches; silty clay
Bt2—20 to 26 inches; paragravelly clay
Cr—26 to 36 inches; weathered bedrock

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Convex, concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Dupee soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Rickreall soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Bellpine—content of clay, slope, depth to bedrock
Jory—content of clay, slope

20—Bellpine-Jory complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Bellpine and similar soils: 55 percent
Jory, sedimentary bedrock and similar soils: 42 percent
Dissimilar minor components: 3 percent

Characteristics of Bellpine

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes, nose slopes
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Ap—0 to 6 inches; silty clay loam
BA—6 to 10 inches; silty clay loam
Bt1—10 to 20 inches; silty clay
Bt2—20 to 26 inches; paragravelly clay
Cr—26 to 36 inches; weathered bedrock

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Concave, linear, convex
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Rickreall soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Dupee soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Bellpine—content of clay, slope, depth to bedrock
Jory—content of clay, slope

21—Blachly-Kilowan complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,300 to 1,800 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Blachly and similar soils: 50 percent
Kilowan and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Blachly

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; loam
BA—7 to 16 inches; clay loam
2Bw1—16 to 27 inches; paragravelly silty clay loam
2Bw2—27 to 54 inches; paragravelly silty clay
2Bw3—54 to 65 inches; silty clay
2BC—65 to 96 inches; silty clay loam

Characteristics of Kilowan

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, mountaintops, upper third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; paragravelly silty clay loam
BA—8 to 14 inches; paragravelly silty clay
Bw1—14 to 23 inches; paragravelly silty clay
Bw2—23 to 31 inches; paragravelly silty clay
Crt—31 to 41 inches; weathered bedrock

Dissimilar Minor Components

Preacher soils
Percentage of map unit: 5 percent
Landform: Linear areas of mountain slopes

Bohannon soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Slickrock soils
Percentage of map unit: 2 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Major Uses

Blachly and Kilowan—forestland, recreation, wildlife habitat

Major Management Limitations

Blachly and Kilowan—slope
Kilowan—depth to bedrock

22—Blachly-Kilowan complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,300 to 1,800 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Blachly and similar soils: 50 percent
Kilowan and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Blachly

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Toeslopes, footslopes

Geomorphic position (three-dimensional): Lower third of mountain flanks, mountain bases
Downslope shape: Concave
Across-slope shape: Linear, concave
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; loam
BA—7 to 16 inches; clay loam
2Bw1—16 to 27 inches; paragravelly silty clay loam
2Bw2—27 to 54 inches; paragravelly silty clay
2Bw3—54 to 65 inches; silty clay
2BC—65 to 96 inches; silty clay loam

Characteristics of Kilowan

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Linear, convex
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; paragravelly silty clay loam
BA—8 to 14 inches; paragravelly silty clay
Bw1—14 to 23 inches; paragravelly silty clay
Bw2—23 to 31 inches; paragravelly silty clay
Crt—31 to 41 inches; weathered bedrock

Dissimilar Minor Components

Preacher soils
Percentage of map unit: 4 percent
Landform: Linear areas of mountain slopes

Bohannon soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Slickrock soils
Percentage of map unit: 3 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Major Uses

Blachly and Kilowan—forestland, recreation, wildlife habitat

Major Management Limitations

Blachly and Kilowan—slope
Kilowan—depth to bedrock

23—Bohannon-Preacher complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Bohannon and similar soils: 50 percent
Preacher and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Bohannon

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Linear, convex
Aspect (representative): West
Aspect (range): Southeast to northeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 10 inches; gravelly medial loam
AB—10 to 19 inches; gravelly loam
Bw1—19 to 27 inches; gravelly loam
Bw2—27 to 34 inches; gravelly loam
Cr—34 to 44 inches; weathered bedrock

Characteristics of Preacher

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave
Across-slope shape: Linear, concave
Aspect (representative): West
Aspect (range): Southeast to northeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 12 inches; medial loam
A2—12 to 18 inches; loam
Bw1—18 to 29 inches; clay loam
Bw2—29 to 44 inches; clay loam
C—44 to 53 inches; loam
Cr—53 to 63 inches; weathered bedrock

Dissimilar Minor Components

Slickrock soils
Percentage of map unit: 3 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Blachly soils
Percentage of map unit: 2 percent
Landform: Concave areas of mountain slopes

Digger soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Kilowan soils
Percentage of map unit: 1 percent
Landform: Linear areas of mountain slopes

Remote soils
Percentage of map unit: 1 percent
Landform: Linear areas of mountain slopes

Umpcoos soils
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes

Major Uses

Bohannon and Preacher—forestland, recreation, wildlife habitat

Major Management Limitations

Bohannon and Preacher—slope
Preacher—low soil strength
Bohannon—depth to bedrock

24—Bohannon-Preacher complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Bohannon and similar soils: 50 percent
Preacher and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Bohannon

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 10 inches; gravelly medial loam
AB—10 to 19 inches; gravelly loam
Bw1—19 to 27 inches; gravelly loam
Bw2—27 to 34 inches; gravelly loam
Cr—34 to 44 inches; weathered bedrock

Characteristics of Preacher

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountain bases
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 12 inches; medial loam
A2—12 to 18 inches; loam
Bw1—18 to 29 inches; clay loam
Bw2—29 to 44 inches; clay loam
C—44 to 53 inches; loam
Cr—53 to 63 inches; weathered bedrock

Dissimilar Minor Components

Digger soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes

Remote soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Umpcoos soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes

Major Uses

Bohannon and Preacher—forestland, recreation, wildlife habitat

Major Management Limitations

Bohannon and Preacher—slope
Preacher—low soil strength
Bohannon—depth to bedrock

25—Briedwell gravelly loam, 0 to 7 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Briedwell and similar soils: 84 percent
Dissimilar minor components: 16 percent

Characteristics of Briedwell

Setting
Landform: Convex and linear areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 0 to 7 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 7 inches; gravelly loam
Bw—7 to 17 inches; gravelly silty clay loam
2C1—17 to 30 inches; very gravelly clay loam
2C2—30 to 60 inches; extremely gravelly clay loam

Dissimilar Minor Components

Abiqua soils
Percentage of map unit: 5 percent
Landform: Linear areas of alluvial fans

Briedwell soils, 7 to 20 percent slopes
Percentage of map unit: 5 percent
Landform: Convex areas of terraces
Geomorphic position (three-dimensional): Treads

Clackamas soils
Percentage of map unit: 5 percent
Landform: Concave and linear areas of terraces
Geomorphic position (three-dimensional): Treads

Briedwell soils, very gravelly surface
Percentage of map unit: 1 percent
Landform: Convex areas of terraces
Geomorphic position (three-dimensional): Treads

Major Use

Cropland

Major Management Limitation

Rock fragments

26—Briedwell gravelly loam, 7 to 20 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Briedwell and similar soils: 94 percent
Dissimilar minor components: 6 percent

Characteristics of Briedwell

Setting
Landform: Convex areas of terraces
Geomorphic position (three-dimensional): Risers
Downslope shape: Convex
Across-slope shape: Linear
Aspect (representative): West
Aspect (range): South to northwest (clockwise)

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 7 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 7 inches; gravelly loam
Bw—7 to 17 inches; gravelly silty clay loam
2C1—17 to 30 inches; very gravelly clay loam
2C2—30 to 60 inches; extremely gravelly clay loam

Dissimilar Minor Components

Briedwell soils, very gravelly surface
Percentage of map unit: 5 percent
Landform: Convex areas of terraces

Abiqua soils
Percentage of map unit: 1 percent
Landform: Linear areas of alluvial fans

Major Use

Cropland

Major Management Limitations

Rock fragments, slope

27—Burntwoods-Oldblue complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Burntwoods and similar soils: 50 percent
Oldblue and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Burntwoods

Setting
Landform: Linear areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks, mountain bases
Downslope shape: Linear, convex
Across-slope shape: Linear, convex
Aspect (representative): Northwest
Aspect (range): Southwest to northeast (clockwise)

Properties and qualities
Parent material: Recent loamy colluvium over older loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 61 to 89 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 3 inches; moderately decomposed plant material
A1—3 to 12 inches; extremely gravelly medial loam

A2—12 to 19 inches; very gravelly medial loam
2BA—19 to 27 inches; very gravelly loam
2Bw1—27 to 41 inches; very gravelly loam
2Bw2—41 to 53 inches; extremely gravelly loam
2Bw3—53 to 67 inches; extremely gravelly loam

Characteristics of Oldblue

Setting
Landform: Concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountain bases
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (representative): Northwest
Aspect (range): Southwest to northeast (clockwise)

Properties and qualities
Parent material: Recent loamy colluvium over older loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 60 to 89 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 18.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 6 inches; gravelly medial loam
A2—6 to 12 inches; very paragravelly medial loam
A3—12 to 21 inches; paragravelly medial loam
2Bw1—21 to 38 inches; extremely paragravelly clay loam
2Bw2—38 to 75 inches; extremely paracobbly clay loam
2Cr—75 to 85 inches; weathered bedrock

Dissimilar Minor Components

Chintimini soils
Percentage of map unit: 5 percent
Landform: Linear and convex areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Grassmountain soils
Percentage of map unit: 5 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, mountaintops, lower third of mountain flanks

Major Uses

Burntwoods and Oldblue—forestland, recreation, wildlife habitat

Major Management Limitation

Burntwoods and Oldblue—slope

28—Camas gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 100 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Camas and similar soils: 87 percent
Dissimilar minor components: 13 percent

Characteristics of Camas

Setting
Landform: Convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Convex, linear

Properties and qualities
Parent material: Sandy and gravelly alluvium derived from igneous rock
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ap1—0 to 2 inches; gravelly sandy loam
Ap2—2 to 10 inches; gravelly sandy loam
C1—10 to 13 inches; gravelly sandy loam
2C2—13 to 60 inches; stratified extremely gravelly coarse sand to very gravelly loamy sand

Dissimilar Minor Components

Newberg soils
Percentage of map unit: 4 percent
Landform: Linear areas of flood plains

Pilchuck soils
Percentage of map unit: 4 percent
Landform: Convex areas of flood plains

Riverwash
Percentage of map unit: 3 percent
Landform: Flood plains consisting of unstabilized channel sediment

Wapato soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Content of sand, rock fragments, flooding

29—Camas gravelly sandy loam, relict bar, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 180 to 300 feet
Mean annual precipitation: 40 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Camas, rarely flooded, and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Camas, Rarely Flooded

Setting
Landform: Convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Convex

Properties and qualities
Parent material: Sandy and gravelly alluvium derived from igneous rock
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ap1—0 to 7 inches; gravelly sandy loam
A2—7 to 10 inches; gravelly sandy loam
2C—10 to 60 inches; stratified extremely gravelly coarse sand to very gravelly loamy sand

Dissimilar Minor Components

Newberg soils
Percentage of map unit: 4 percent
Landform: Linear areas of flood plains

Pilchuck soils
Percentage of map unit: 4 percent
Landform: Convex areas of flood plains

Wapato soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Content of sand, rock fragments, flooding

30—Caterl-Laderly-Romanose complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Caterl and similar soils: 40 percent
Laderly and similar soils: 30 percent
Romanose and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Caterl

Setting

Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (representative): West
Aspect (range): East to northeast (clockwise)

Properties and qualities

Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; gravelly medial loam
A2—9 to 18 inches; very gravelly medial loam
Bw—18 to 37 inches; very gravelly medial loam
C—37 to 55 inches; extremely cobbly medial loam
R—55 to 59 inches; unweathered bedrock

Characteristics of Laderly

Setting

Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex, concave
Aspect (representative): West
Aspect (range): East to northeast (clockwise)

Properties and qualities

Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; very gravelly medial loam
Bw1—15 to 29 inches; very cobbly medial loam
Bw2—29 to 37 inches; extremely cobbly medial loam
R—37 to 41 inches; unweathered bedrock

Characteristics of Romanose

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): West
Aspect (range): East to northeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; very gravelly medial loam
AC—7 to 11 inches; very gravelly medial loam
C—11 to 16 inches; extremely cobbly medial loam
R—16 to 20 inches; unweathered bedrock

Dissimilar Minor Components

Murtip soils
Percentage of map unit: 5 percent
Landform: Concave and linear areas of mountain slopes

Giveout soils
Percentage of map unit: 4 percent
Landform: Mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Rock outcrop
Percentage of map unit: 1 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Caterl, Laderly, and Romanose—forestland, recreation, wildlife habitat

Major Management Limitations

Caterl, Laderly, and Romanose—slope
Laderly and Romanose—depth to bedrock

31—Caterl-Laderly-Romanose complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Caterl and similar soils: 40 percent
Laderly and similar soils: 30 percent
Romanose and similar soils: 25 percent
Dissimilar minor components: 5 percent

Characteristics of Caterl

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks
Downslope shape: Concave
Across-slope shape: Linear, concave
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; gravelly medial loam
A2—9 to 18 inches; very gravelly medial loam
Bw—18 to 37 inches; very gravelly medial loam
C—37 to 55 inches; extremely cobbly medial loam
R—55 to 59 inches; unweathered bedrock

Characteristics of Laderly

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Concave, convex
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; very gravelly medial loam
Bw1—15 to 29 inches; very cobbly medial loam
Bw2—29 to 37 inches; extremely cobbly medial loam
R—37 to 41 inches; unweathered bedrock

Characteristics of Romanose

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; very gravelly medial loam
AC—7 to 11 inches; very gravelly medial loam
C—11 to 16 inches; extremely cobbly medial loam
R—16 to 20 inches; unweathered bedrock

Dissimilar Minor Components

Giveout soils
Percentage of map unit: 2 percent
Landform: Mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Murtip soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of mountain slopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Caterl, Laderly, and Romanose—forestland, recreation, wildlife habitat

Major Management Limitations

Caterl, Laderly, and Romanose—slope
Laderly and Romanose—depth to bedrock

32—Caterl-Murtip-Giveout complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Caterl and similar soils: 35 percent
Murtip and similar soils: 30 percent

Giveout and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Caterl

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks
Downslope shape: Linear
Across-slope shape: Concave, linear
Aspect (representative): Northeast
Aspect (range): West to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; gravelly medial loam
A2—9 to 18 inches; very gravelly medial loam
Bw—18 to 37 inches; very gravelly medial loam
C—37 to 55 inches; extremely cobbly medial loam
R—55 to 59 inches; unweathered bedrock

Characteristics of Murtip

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountain bases
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (representative): Northeast
Aspect (range): West to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent

Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 21.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 19 inches; medial loam
Bw1—19 to 31 inches; medial loam
Bw2—31 to 45 inches; medial loam
BC—45 to 56 inches; gravelly medial loam
Cr—56 to 66 inches; weathered bedrock

Characteristics of Giveout

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex
Aspect (representative): Northeast
Aspect (range): West to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 16 inches; gravelly medial loam
Bw1—16 to 28 inches; gravelly medial loam
Bw2—28 to 36 inches; gravelly medial loam
Cr—36 to 46 inches; weathered bedrock

Dissimilar Minor Components

Laderly soils
Percentage of map unit: 6 percent
Landform: Convex areas of mountain slopes

Romanose soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes

Major Uses

Caterl, Murtip, and Giveout—forestland, recreation, wildlife habitat

Major Management Limitations

Caterl, Murtip, and Giveout—slope
Giveout—depth to bedrock

33—Caterl-Murtip-Laderly complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Caterl and similar soils: 40 percent
Murtip and similar soils: 30 percent
Laderly and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Caterl

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (representative): Southwest
Aspect (range): East to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; gravelly medial loam
A2—9 to 18 inches; very gravelly medial loam
Bw—18 to 37 inches; very gravelly medial loam
C—37 to 55 inches; extremely cobbly medial loam
R—55 to 59 inches; unweathered bedrock

Characteristics of Murtip

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountain bases
Downslope shape: Linear
Across-slope shape: Linear, concave
Aspect (representative): Southwest
Aspect (range): East to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 21.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 19 inches; medial loam
Bw1—19 to 31 inches; medial loam
Bw2—31 to 45 inches; medial loam
BC—45 to 56 inches; gravelly medial loam
Cr—56 to 66 inches; weathered bedrock

Characteristics of Laderly

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks
Downslope shape: Linear, convex

Across-slope shape: Concave, convex
Aspect (representative): Southwest
Aspect (range): East to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; very gravelly medial loam
Bw1—15 to 29 inches; very cobbly medial loam
Bw2—29 to 37 inches; extremely cobbly medial loam
R—37 to 41 inches; unweathered bedrock

Dissimilar Minor Components

Giveout soils
Percentage of map unit: 6 percent
Landform: Mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Romanose soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes

Major Uses

Caterl, Murtip, and Laderly—forestland, recreation, wildlife habitat

Major Management Limitations

Caterl, Murtip, and Laderly—slope
Laderly—depth to bedrock

34—Chapman loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 170 to 1,000 feet
Mean annual precipitation: 40 to 60 inches

Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Chapman and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Chapman

Setting
Landform: Linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 1
Land capability subclass (irrigated): 1

Typical profile
Ap—0 to 8 inches; loam
A—8 to 14 inches; clay loam
BA—14 to 23 inches; loam
Bw—23 to 33 inches; loam
BC—33 to 42 inches; loam
C1—42 to 50 inches; gravelly sandy loam
C2—50 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Newberg soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of flood plains

McBee soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Wapato soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Salem soils
Percentage of map unit: 1 percent
Landform: Convex areas of terraces

Major Use

Cropland

Major Management Limitation

Flooding

35—Chapman loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 300 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Chapman, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Chapman, High Precipitation

Setting
Landform: Linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear, concave
Across-slope shape: Linear

Properties and qualities
Parent material: Loamy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Land capability subclass (irrigated): 2c

Typical profile
Ap—0 to 8 inches; loam
A—8 to 14 inches; clay loam
BA—14 to 23 inches; loam
Bw—23 to 33 inches; loam
BC—33 to 42 inches; loam
C1—42 to 50 inches; gravelly sandy loam
C2—50 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Chehalis soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Fluvents, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex flood plains

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Wapato soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Major Uses

Cropland, homesites, forestland, wildlife habitat

Major Management Limitations

Rare flooding, filtering capacity

36—Chehalem silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Chehalem and similar soils: 91 percent
Dissimilar minor components: 9 percent

Characteristics of Chehalem

Setting
Landform: Concave and linear areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from sedimentary and igneous rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 11 to 23 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silty clay loam
A—7 to 11 inches; silty clay loam
AB—11 to 23 inches; silty clay loam
Bw1—23 to 36 inches; silty clay
Bw2—36 to 49 inches; silty clay
C—49 to 60 inches; silty clay

Dissimilar Minor Components

Cove soils
Percentage of map unit: 6 percent
Landform: Concave areas of flood plains

Abiqua soils
Percentage of map unit: 3 percent
Landform: Convex areas of alluvial fans

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

37—Chehalem silty clay loam, 3 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Chehalem and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Chehalem

Setting
Landform: Convex and linear areas of alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Linear
Across-slope shape: Concave, linear, convex

Properties and qualities
Parent material: Clayey alluvium derived from sedimentary and igneous rock
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 11 to 23 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 7 inches; silty clay loam
A—7 to 11 inches; silty clay loam
AB—11 to 23 inches; silty clay loam
Bw1—23 to 36 inches; silty clay
Bw2—36 to 49 inches; silty clay
C—49 to 60 inches; silty clay

Dissimilar Minor Components

Cove soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Abiqua soils
Percentage of map unit: 3 percent
Landform: Convex areas of alluvial fans

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

38—Chehalis silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 50 to 350 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Chehalis and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Chehalis

Setting
Landform: Linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silt loam
A—7 to 24 inches; silty clay loam
Bw—24 to 44 inches; silty clay loam
C—44 to 60 inches; stratified fine sandy loam to silty clay loam

Dissimilar Minor Components

Cloquato soils
Percentage of map unit: 3 percent
Landform: Linear areas of flood plains

McBee soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains

Camas soils
Percentage of map unit: 2 percent
Landform: Convex areas of flood plains

Wapato soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Major Use

Cropland

Major Management Limitation

Flooding

39—Chehalis silt loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 300 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Chehalis, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Chehalis, High Precipitation

Setting
Landform: Linear to slightly convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave, linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty and loamy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silt loam
A—7 to 24 inches; silty clay loam
Bw—24 to 44 inches; silty clay loam
C—44 to 60 inches; stratified fine sandy loam to silty clay loam

Dissimilar Minor Components

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Chapman soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear areas of flood plains

Fluvents, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Wapato soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitation

Flooding

40—Chehalis silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 30 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Chehalis and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Chehalis

Setting
Landform: Linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 8 inches; silty clay loam
A—8 to 16 inches; silty clay loam
Bw1—16 to 38 inches; silty clay loam
Bw2—38 to 45 inches; silty clay loam
C—45 to 60 inches; stratified fine sandy loam to silty clay loam

Dissimilar Minor Components

Camas soils
Percentage of map unit: 3 percent
Landform: Convex areas of flood plains

McBee soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains

Wapato soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Major Use

Cropland

Major Management Limitation

Flooding

41—Chintimini-Blodgett complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Chintimini and similar soils: 45 percent
Blodgett and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Chintimini

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks, mountain bases
Downslope shape: Concave, linear
Across-slope shape: Linear, concave

Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive features: 40 to 60 inches to paralithic bedrock; 50 to 70 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A—4 to 9 inches; very gravelly medial loam
AB—9 to 20 inches; extremely gravelly medial loam
Bw—20 to 38 inches; very cobbly clay loam
C—38 to 47 inches; very paragravelly clay loam
Cr—47 to 51 inches; weathered bedrock
R—51 to 55 inches; unweathered bedrock

Characteristics of Blodgett

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders
Geomorphic position (three-dimensional): Upper third of mountain flanks
Downslope shape: Convex
Across-slope shape: Linear, convex
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive features: 12 to 17 inches to paralithic bedrock; 13 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; very gravelly medial loam
Bw1—6 to 11 inches; extremely gravelly loam
Bw2—11 to 16 inches; extremely cobbly loam
Cr—16 to 19 inches; weathered bedrock
R—19 to 23 inches; unweathered bedrock

Dissimilar Minor Components

Fiverivers soils
Percentage of map unit: 6 percent
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Grassmountain soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks, mountaintops

Burntwoods soils
Percentage of map unit: 3 percent
Landform: Concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Oldblue soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Major Uses

Chintimini and Blodgett—forestland, recreation, wildlife habitat

Major Management Limitations

Chintimini and Blodgett—slope
Blodgett—depth to bedrock, content of rock fragments

42—Chintimini-Blodgett-Fiverivers complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Chintimini and similar soils: 40 percent
Blodgett and similar soils: 30 percent

Fiverivers and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Chintimini

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, center third of mountain flanks, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Linear, concave
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 60 inches to paralithic bedrock; 50 to 70 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A—4 to 9 inches; very gravelly medial loam
AB—9 to 20 inches; extremely gravelly medial loam
Bw—20 to 38 inches; very cobbly clay loam
C—38 to 47 inches; very paragravelly clay loam
Cr—47 to 51 inches; weathered bedrock
R—51 to 55 inches; unweathered bedrock

Characteristics of Blodgett

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders
Geomorphic position (three-dimensional): Upper third of mountain flanks
Downslope shape: Convex
Across-slope shape: Convex, linear
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive features: 12 to 17 inches to paralithic bedrock; 13 to 20 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; very gravelly medial loam
Bw1—6 to 11 inches; extremely gravelly loam
Bw2—11 to 16 inches; extremely cobbly loam
Cr—16 to 19 inches; weathered bedrock
R—19 to 23 inches; unweathered bedrock

Characteristics of Fiverivers

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Linear
Across-slope shape: Convex, concave
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very gravelly medial loam
AB—4 to 9 inches; very gravelly medial loam
Bw—9 to 15 inches; gravelly loam
Bt1—15 to 25 inches; extremely paragravelly clay loam
Bt2—25 to 36 inches; extremely paragravelly clay loam
Crt—36 to 46 inches; weathered bedrock

Dissimilar Minor Components

Grassmountain soils
Percentage of map unit: 5 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, mountain bases, lower third of mountain flanks

Burntwoods soils
Percentage of map unit: 3 percent
Landform: Concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Oldblue soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Major Uses

Chintimini, Blodgett, and Fiverivers—forestland, recreation, wildlife habitat

Major Management Limitations

Chintimini, Blodgett, and Fiverivers—slope
Blodgett and Fiverivers—depth to bedrock
Blodgett—content of rock fragments
Fiverivers—thickness of surface layer, texture, content of rock fragments

43—Chintimini-Grassmountain complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Chintimini and similar soils: 45 percent
Grassmountain and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Chintimini

Setting
Landform: Linear and convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive features: 40 to 60 inches to paralithic bedrock; 50 to 70 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A—4 to 9 inches; very gravelly medial loam
AB—9 to 20 inches; extremely gravelly medial loam
Bw—20 to 38 inches; very cobbly clay loam
C—38 to 47 inches; very paragravelly clay loam
Cr—47 to 51 inches; weathered bedrock
R—51 to 55 inches; unweathered bedrock

Characteristics of Grassmountain

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly medial loam
AB—7 to 15 inches; paragravelly medial loam

Bw1—15 to 29 inches; paragravelly loam
Bw2—29 to 44 inches; very paragravelly clay loam
BCt—44 to 69 inches; extremely paragravelly clay loam
Crt—69 to 79 inches; weathered bedrock

Dissimilar Minor Components

Fiverivers soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Oldblue soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Blodgett soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Burntwoods soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Major Uses

Chintimini and Grassmountain—forestland, recreation, wildlife habitat

Major Management Limitation

Chintimini and Grassmountain—slope

44—Chismore-Pyburn complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 500 to 1,000 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Chismore and similar soils: 55 percent
Pyburn and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Chismore

Setting
Landform: Nearly level to convex areas of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Old mixed clayey alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 22 to 30 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; silt loam
A2—9 to 17 inches; silt loam
BA—17 to 22 inches; silty clay loam
Bt1—22 to 30 inches; silty clay loam
Bt2—30 to 43 inches; silty clay
BC—43 to 66 inches; silty clay

Characteristics of Pyburn

Setting
Landform: Depressions of stream terraces

Properties and qualities
Parent material: Old mixed clayey alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 13 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ac—0 to 13 inches; silty clay
BAc—13 to 20 inches; silty clay
Bt—20 to 36 inches; clay
BCss—36 to 48 inches; clay
C—48 to 66 inches; clay loam

Dissimilar Minor Components

Apt soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Honeygrove soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Meda soils
Percentage of map unit: 3 percent
Landform: Gently sloping to strongly sloping areas of alluvial fans

Preacher soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Bohannon soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Treharne soils
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of stream terraces

Major Uses

Chismore—native and improved pasture, forestland, homesites, recreation, wildlife habitat
Pyburn—native and improved pasture, recreation, wildlife habitat

Major Management Limitations

Chismore and Pyburn—depth to saturated zone, content of clay, restricted permeability, low soil strength
Pyburn—ponding

45—Chismore-Pyburn complex, 3 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 500 to 1,000 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Chismore and similar soils: 60 percent
Pyburn and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Chismore

Setting
Landform: Gently sloping to strongly sloping areas of stream terraces

Geomorphic position (three-dimensional): Risers
Downslope shape: Concave, linear
Across-slope shape: Linear
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Old mixed clayey alluvium derived from volcanic and sedimentary rock
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 22 to 30 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; silt loam
A2—9 to 17 inches; silt loam
BA—17 to 22 inches; silty clay loam
Bt1—22 to 30 inches; silty clay loam
Bt2—30 to 43 inches; silty clay
BC—43 to 66 inches; silty clay

Characteristics of Pyburn

Setting
Landform: Depressions of stream terraces

Properties and qualities
Parent material: Old mixed clayey alluvium derived from volcanic and sedimentary rock
Slope range: 3 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 13 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ac—0 to 13 inches; silty clay
BAc—13 to 20 inches; silty clay
Bt—20 to 36 inches; clay
BCss—36 to 48 inches; clay
C—48 to 66 inches; clay loam

Dissimilar Minor Components

Apt soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Honeygrove soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Meda soils
Percentage of map unit: 3 percent
Landform: Gently sloping to strongly sloping areas of alluvial fans

Preacher soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Bohannon soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Treharne soils
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of stream terraces

Major Uses

Chismore—native and improved pasture, forestland, homesites, recreation, wildlife habitat
Pyburn—native and improved pasture, recreation, wildlife habitat

Major Management Limitations

Chismore and Pyburn—depth to saturated zone, content of clay, restricted permeability, low soil strength
Chismore—slope
Pyburn—ponding

46—Cloquato silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 30 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Cloquato and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Cloquato

Setting
Landform: Linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty alluvium over sandy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silt loam
A1—7 to 12 inches; silt loam
A2—12 to 40 inches; silt loam
2C1—40 to 52 inches; stratified sandy loam to silt loam
2C2—52 to 72 inches; stratified sand to fine sandy loam

Dissimilar Minor Components

Chehalis soils
Percentage of map unit: 4 percent
Landform: Linear areas of flood plains

McBee soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains

Wapato soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Camas soils
Percentage of map unit: 1 percent
Landform: Convex areas of flood plains

Major Use

Cropland (fig. 11)

Major Management Limitation

Flooding

Figure 11.—Sweet corn in an area of Cloquato silt loam, 0 to 3 percent slopes.

47—Cloquato silt loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 300 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Cloquato, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Cloquato, High Precipitation

Setting
Landform: Linear to slightly concave areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear, concave
Across-slope shape: Linear

Properties and qualities

Parent material: Silty alluvium derived from igneous and sedimentary rock over sandy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile

Ap—0 to 7 inches; silt loam
A1—7 to 12 inches; silt loam
A2—12 to 40 inches; silt loam
2C1—40 to 52 inches; stratified sandy loam to silt loam
2C2—52 to 72 inches; stratified sand to fine sandy loam

Dissimilar Minor Components

Alsea soils, rarely flooded

Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Fluvents, high precipitation

Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Newberg soils, high precipitation

Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Waldo soils, high precipitation

Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Wapato soils, high precipitation

Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitation

Flooding

48—Coburg complex, rarely and occasionally flooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 250 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Coburg, occasionally flooded, and similar soils: 45 percent
Coburg, rarely flooded, and similar soils: 44 percent
Dissimilar minor components: 11 percent

Characteristics of Coburg, Occasionally Flooded

Setting
Landform: Concave and linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Clayey and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 18 to 28 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
A1—0 to 10 inches; silty clay loam
A2—10 to 18 inches; silty clay loam
AB—18 to 28 inches; silty clay loam
Bt1—28 to 43 inches; silty clay loam
Bt2—43 to 60 inches; silty clay

Characteristics of Coburg, Rarely Flooded

Setting
Landform: Terraces of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Convex

Properties and qualities
Parent material: Clayey and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 33 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
A1—0 to 9 inches; silty clay loam
A2—9 to 15 inches; silty clay loam
BAt—15 to 24 inches; silty clay
Bt1—24 to 33 inches; silty clay
Bt2—33 to 41 inches; silty clay
BCt—41 to 60 inches; silty clay

Dissimilar Minor Components

McBee soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Chehalis soils
Percentage of map unit: 2 percent
Landform: Linear areas of flood plains

Riverwash
Percentage of map unit: 1 percent
Landform: Flood plains consisting of unstabilized channel sediment

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Coburg, rarely flooded and occasionally flooded—flooding, depth to saturated zone, content of clay

49—Coburg silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2

Elevation: 150 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Coburg and similar soils: 88 percent
Dissimilar minor components: 12 percent

Characteristics of Coburg

Setting
Landform: Concave and linear areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 28 to 41 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silty clay loam
AB—7 to 18 inches; silty clay loam
Bt1—18 to 28 inches; silty clay
Bt2—28 to 41 inches; silty clay loam
Bt3—41 to 53 inches; silty clay
2C—53 to 65 inches; fine sandy loam

Dissimilar Minor Components

Malabon soils
Percentage of map unit: 5 percent
Landform: Terraces

Conser soils
Percentage of map unit: 4 percent
Landform: Concave areas of terraces

Salem soils
Percentage of map unit: 2 percent
Landform: Convex areas of terraces

Clackamas soils
Percentage of map unit: 1 percent
Landform: Linear areas of terraces

Major Uses

Cropland, urban development

Major Management Limitation

Depth to saturated zone

50—Coburg silty clay loam, rarely flooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 170 to 300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Coburg, rarely flooded, and similar soils: 89 percent
Dissimilar minor components: 11 percent

Characteristics of Coburg, Rarely Flooded

Setting
Landform: Concave and linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 33 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
A1—0 to 9 inches; silty clay loam
A2—9 to 15 inches; silty clay loam
BAt—15 to 24 inches; silty clay
Bt1—24 to 33 inches; silty clay
Bt2—33 to 41 inches; silty clay
BCt—41 to 60 inches; silty clay

Dissimilar Minor Components

McBee soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Chehalis soils
Percentage of map unit: 2 percent
Landform: Linear areas of flood plains

Riverwash
Percentage of map unit: 1 percent
Landform: Flood plains consisting of unstabilized channel sediment

Major Use

Cropland

Major Management Limitations

Flooding, depth to saturated zone, content of clay

51—Concord silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Concord and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Concord

Setting
Landform: Concave and linear areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear, concave

Properties and qualities
Parent material: Silty and clayey glaciolacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the surface to a depth of 6 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 6 inches; silt loam
E1—6 to 9 inches; silt loam
E2—9 to 15 inches; silt loam
2ABg—15 to 19 inches; silty clay
2Btg—19 to 24 inches; silty clay
2BCtg—24 to 29 inches; silty clay
3C—29 to 60 inches; silt loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 5 percent
Landform: Convex areas of terraces

Holcomb soils
Percentage of map unit: 2 percent
Landform: Convex areas of terraces

Woodburn soils
Percentage of map unit: 1 percent
Landform: Convex areas of terraces

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Depth to saturated zone, ponding

52—Conser silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 600 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Conser and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Conser

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Silty and clayey alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 9 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
A—0 to 9 inches; silty clay loam
BAg—9 to 14 inches; silty clay
Btg—14 to 27 inches; clay
BCtg—27 to 41 inches; silty clay
2Cg1—41 to 49 inches; stratified sandy loam to silty clay loam
2Cg2—49 to 60 inches; stratified sandy loam to silty clay loam

Dissimilar Minor Components

Coburg soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of terraces

Awbrig soils
Percentage of map unit: 4 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Courtney soils
Percentage of map unit: 3 percent
Landform: Depressions of terraces

Clackamas soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of terraces

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, content of clay, shrink-swell potential, ponding

53—Dayton silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Dayton and similar soils: 93 percent
Dissimilar minor components: 7 percent

Characteristics of Dayton

Setting
Landform: Concave and linear areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear, concave

Properties and qualities
Parent material: Silty and clayey glaciolacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: 12 to 24 inches to abrupt textural change
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 9 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
A—0 to 9 inches; silt loam
E1—9 to 12 inches; silt loam
E2—12 to 15 inches; silt loam
2Bt1—15 to 22 inches; silty clay
2Bt2—22 to 29 inches; silty clay
2BCt1—29 to 40 inches; silty clay
2BCt2—40 to 53 inches; silt loam
3C1—53 to 64 inches; silt loam
3C2—64 to 76 inches; silt loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 3 percent
Landform: Linear areas of terraces

Holcomb soils
Percentage of map unit: 2 percent
Landform: Convex areas of terraces

Woodburn soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of terraces

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, ponding, shallow to abrupt textural change

54—Dayton silt loam, clay substratum, 0 to 2 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Dayton, clay substratum, and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Dayton, Clay Substratum

Setting
Landform: Concave and linear areas of terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Silty and clayey glaciolacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: 12 to 24 inches to abrupt textural change
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 7 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ap—0 to 7 inches; silt loam
E1—7 to 12 inches; silt loam
E2—12 to 16 inches; silty clay loam
2Bt—16 to 30 inches; silty clay
2BCt—30 to 45 inches; silty clay
2C—45 to 60 inches; silty clay

Dissimilar Minor Components

Coburg soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of terraces

Holcomb soils
Percentage of map unit: 2 percent
Landform: Convex areas of terraces

Linslaw soils
Percentage of map unit: 2 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Courtney soils
Percentage of map unit: 1 percent
Landform: Depressions of terraces

Woodburn soils
Percentage of map unit: 1 percent
Landform: Convex areas of terraces

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, ponding, shallow to abrupt textural change

55—Digger-Bohannon complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Digger and similar soils: 50 percent
Bohannon and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Digger

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes
Geomorphic position (three-dimensional): Mountaintops, center third of mountain flanks, upper third of mountain flanks
Downslope shape: Convex
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock; 30 to 50 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very gravelly loam
BA—4 to 16 inches; very cobbly loam
Bw1—16 to 30 inches; very gravelly loam
Bw2—30 to 38 inches; extremely cobbly loam
Cr—38 to 48 inches; weathered bedrock
R—48 to 52 inches; unweathered bedrock

Characteristics of Bohannon

Setting
Landform: Linear and concave summits of mountain slopes
Geomorphic position (two-dimensional): Summits
Geomorphic position (three-dimensional): Mountaintops
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 10 inches; gravelly medial loam
AB—10 to 19 inches; gravelly loam
Bw1—19 to 27 inches; gravelly loam
Bw2—27 to 34 inches; gravelly loam
Cr—34 to 44 inches; weathered bedrock

Dissimilar Minor Components

Preacher soils
Percentage of map unit: 4 percent
Landform: Concave areas of mountain slopes

Remote soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Umpcoos soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes

Major Uses

Digger and Bohannon—forestland, recreation, wildlife habitat

Major Management Limitations

Digger and Bohannon—slope, depth to bedrock

56—Digger-Remote-Umpcoos complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Digger and similar soils: 40 percent
Remote and similar soils: 35 percent
Umpcoos and similar soils: 20 percent
Dissimilar minor components: 5 percent

Characteristics of Digger

Setting
Landform: Linear and convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (representative): South
Aspect (range): Northeast to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock; 30 to 50 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very gravelly loam
BA—4 to 16 inches; very cobbly loam
Bw1—16 to 30 inches; very gravelly loam
Bw2—30 to 38 inches; extremely cobbly loam
Cr—38 to 48 inches; weathered bedrock
R—48 to 52 inches; unweathered bedrock

Characteristics of Remote

Setting
Landform: Linear areas of mountain slopes
Aspect (representative): South
Aspect (range): Northeast to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very gravelly loam
Bw1—5 to 17 inches; very gravelly loam
Bw2—17 to 33 inches; very gravelly loam
Bw3—33 to 42 inches; very gravelly loam
C—42 to 72 inches; very gravelly loam

Characteristics of Umpcoos

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): South
Aspect (range): Northeast to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very gravelly loam
Bw1—5 to 12 inches; very cobbly loam
Bw2—12 to 16 inches; extremely cobbly loam
R—16 to 20 inches; unweathered bedrock

Dissimilar Minor Components

Bohannon soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Preacher soils
Percentage of map unit: 2 percent
Landform: Concave areas of mountain slopes

Major Uses

Digger, Remote, and Umpcoos—forestland, recreation, wildlife habitat

Major Management Limitations

Digger, Remote, and Umpcoos—slope
Digger and Umpcoos—depth to bedrock

57—Digger-Umpcoos-Remote complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Digger and similar soils: 40 percent
Umpcoos and similar soils: 35 percent
Remote and similar soils: 20 percent
Dissimilar minor components: 5 percent

Characteristics of Digger

Setting
Landform: Linear and convex areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks
Downslope shape: Convex
Across-slope shape: Convex
Aspect (representative): South
Aspect (range): Northeast to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock; 30 to 50 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very gravelly loam
BA—4 to 16 inches; very cobbly loam
Bw1—16 to 30 inches; very gravelly loam
Bw2—30 to 38 inches; extremely cobbly loam
Cr—38 to 48 inches; weathered bedrock
R—48 to 52 inches; unweathered bedrock

Characteristics of Umpcoos

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): South
Aspect (range): Northeast to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very gravelly loam
Bw1—5 to 12 inches; very cobbly loam
Bw2—12 to 16 inches; extremely cobbly loam
R—16 to 20 inches; unweathered bedrock

Characteristics of Remote

Setting
Landform: Linear areas of mountain slopes
Aspect (representative): South
Aspect (range): Northeast to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very gravelly loam
Bw1—5 to 17 inches; very gravelly loam
Bw2—17 to 33 inches; very gravelly loam
Bw3—33 to 42 inches; very gravelly loam
C—42 to 72 inches; very gravelly loam

Dissimilar Minor Components

Bohannon soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Preacher soils
Percentage of map unit: 2 percent
Landform: Concave areas of mountain slopes

Major Uses

Digger, Umpcoos, and Remote—forestland, recreation, wildlife habitat

Major Management Limitations

Digger, Umpcoos, and Remote—slope
Digger and Umpcoos—depth to bedrock

58—Dixonville-Gellatly complex, 12 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,500 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Dixonville and similar soils: 46 percent
Gellatly and similar soils: 43 percent
Dissimilar minor components: 11 percent

Characteristics of Dixonville

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Shoulders, backslopes, footslopes
Geomorphic position (three-dimensional): Side slopes, nose slopes, base slopes
Downslope shape: Convex, concave, linear
Across-slope shape: Linear, convex
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 12 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 4 inches; silty clay loam
A2—4 to 12 inches; silty clay
Bt1—12 to 21 inches; clay
Bt2—21 to 34 inches; clay
Cr—34 to 44 inches; weathered bedrock

Characteristics of Gellatly

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Base slopes, nose slopes, side slopes
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 12 to 30 percent
Depth to restrictive feature: 60 to 98 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A—0 to 8 inches; silty clay loam
BAt—8 to 14 inches; silty clay loam
Bt—14 to 29 inches; clay
BCt1—29 to 45 inches; silty clay loam
BCt2—45 to 61 inches; silty clay loam
Cr—61 to 71 inches; weathered bedrock

Dissimilar Minor Components

Witham soils
Percentage of map unit: 7 percent
Landform: Concave areas of alluvial fans

Philomath soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Bashaw soils, nonflooded
Percentage of map unit: 1 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Ritner soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Dixonville and Gellatly—content of clay, shrink-swell potential, slope, depth to bedrock

59—Dixonville-Gellatly complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,500 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Dixonville and similar soils: 55 percent
Gellatly and similar soils: 33 percent
Dissimilar minor components: 12 percent

Characteristics of Dixonville

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes, nose slopes
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 4 inches; silty clay loam
A2—4 to 12 inches; silty clay
Bt1—12 to 21 inches; clay
Bt2—21 to 34 inches; clay
Cr—34 to 44 inches; weathered bedrock

Characteristics of Gellatly

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Linear
Across-slope shape: Concave, linear
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 60 to 98 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A—0 to 8 inches; silty clay loam
BAt—8 to 14 inches; silty clay loam
Bt—14 to 29 inches; clay
BCt1—29 to 45 inches; silty clay loam
BCt2—45 to 61 inches; silty clay loam
Cr—61 to 71 inches; weathered bedrock

Dissimilar Minor Components

Philomath soils
Percentage of map unit: 10 percent
Landform: Convex areas of hillslopes

Ritner soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Witham soils
Percentage of map unit: 1 percent
Landform: Concave areas of alluvial fans

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Dixonville and Gellatly—content of clay, shrink-swell potential, slope, depth to bedrock

60—Dixonville-Gellatly-Witham complex, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,200 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Dixonville and similar soils: 34 percent
Gellatly and similar soils: 28 percent
Witham and similar soils: 20 percent
Dissimilar minor components: 18 percent

Characteristics of Dixonville

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Linear
Across-slope shape: Convex

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
A1—0 to 4 inches; silty clay loam
A2—4 to 12 inches; silty clay

Bt1—12 to 21 inches; clay
Bt2—21 to 34 inches; clay
Cr—34 to 44 inches; weathered bedrock

Characteristics of Gellatly

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Linear
Across-slope shape: Concave, linear

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 3 to 12 percent
Depth to restrictive feature: 60 to 98 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
A—0 to 8 inches; silty clay loam
BAt—8 to 14 inches; silty clay loam
Bt—14 to 29 inches; clay
BCt1—29 to 45 inches; silty clay loam
BCt2—45 to 61 inches; silty clay loam
Cr—61 to 71 inches; weathered bedrock

Characteristics of Witham

Setting
Landform: Concave areas of alluvial fans

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 12 to 21 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 12 inches; silty clay
Bw1—12 to 21 inches; clay
Bw2—21 to 29 inches; clay
C—29 to 60 inches; clay

Dissimilar Minor Components

Philomath soils
Percentage of map unit: 10 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Ritner soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Bashaw soils, nonflooded
Percentage of map unit: 1 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, homesite development

Major Management Limitations

Dixonville and Gellatly—content of clay, shrink-swell potential, depth to bedrock
Witham—depth to saturated zone, content of clay, shrink-swell potential

61—Dupee silt loam, 3 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 170 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Dupee and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Dupee

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes

Downslope shape: Linear
Across-slope shape: Linear, concave, convex

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam
AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Dissimilar Minor Components

Melbourne soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Bellpine soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

Hazelair soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of slumps

Willakenzie soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

62—Dupee silt loam, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 170 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Dupee and similar soils: 87 percent
Dissimilar minor components: 13 percent

Characteristics of Dupee

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Footslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (representative): Northeast
Aspect (range): West to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam
AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Dissimilar Minor Components

Melbourne soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Bellpine soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

Hazelair soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Willakenzie soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, slope

63—Elsie silt loam, 0 to 7 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 400 to 800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Elsie and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Elsie

Setting
Landform: Nearly level to gently sloping areas of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear, concave
Across-slope shape: Linear

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 7 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 8 inches; silt loam
A1—8 to 15 inches; silt loam
A2—15 to 22 inches; silt loam
Bt1—22 to 35 inches; silty clay loam
Bt2—35 to 53 inches; silty clay loam
BC—53 to 67 inches; loam

Dissimilar Minor Components

Chismore soils
Percentage of map unit: 5 percent
Landform: Nearly level to convex areas of stream terraces

Eilertsen soils
Percentage of map unit: 5 percent
Landform: Nearly level to gently sloping, slightly convex areas of stream terraces

Meda soils
Percentage of map unit: 5 percent
Landform: Gently sloping areas of alluvial fans

Treharne soils
Percentage of map unit: 2 percent
Landform: Linear to slightly concave areas of stream terraces

Pyburn soils
Percentage of map unit: 1 percent
Landform: Depressions of stream terraces

Wasson soils
Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Zyzzug soils
Percentage of map unit: 1 percent
Landform: Depressions of stream terraces
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, forestland, homesites, recreation, wildlife habitat

Major Management Limitation

Low soil strength

64—Elsie silt loam, 7 to 15 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 400 to 800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Elsie and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Elsie

Setting
Landform: Gently sloping to strongly sloping areas of stream terraces
Geomorphic position (three-dimensional): Risers
Downslope shape: Concave, linear
Across-slope shape: Linear
Aspect (representative): Northwest
Aspect (range): South to northeast (clockwise)

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 7 to 15 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e

Typical profile
Ap—0 to 8 inches; silt loam
A1—8 to 15 inches; silt loam
A2—15 to 22 inches; silt loam
Bt1—22 to 35 inches; silty clay loam
Bt2—35 to 53 inches; silty clay loam
BC—53 to 67 inches; loam

Dissimilar Minor Components

Chismore soils
Percentage of map unit: 5 percent
Landform: Gently sloping to strongly sloping areas of stream terraces

Meda soils
Percentage of map unit: 5 percent
Landform: Gently sloping to strongly sloping areas of alluvial fans

Eilertsen soils
Percentage of map unit: 2 percent
Landform: Nearly level to gently sloping, slightly convex areas of stream terraces

Treharne soils
Percentage of map unit: 2 percent
Landform: Linear to slightly concave areas of stream terraces

Pyburn soils
Percentage of map unit: 1 percent
Landform: Depressions of stream terraces

Major Uses

Cropland, forestland, homesites, recreation, wildlife habitat

Major Management Limitations

Slope, low soil strength

65—Fiverivers-Grassmountain-Chintimini complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Fiverivers and similar soils: 35 percent
Grassmountain and similar soils: 30 percent
Chintimini and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Fiverivers

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders
Geomorphic position (three-dimensional): Upper third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very gravelly medial loam
AB—4 to 9 inches; very gravelly medial loam
Bw—9 to 15 inches; gravelly loam

Bt1—15 to 25 inches; extremely paragravelly clay loam
Bt2—25 to 36 inches; extremely paragravelly clay loam
Crt—36 to 46 inches; weathered bedrock

Characteristics of Grassmountain

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountaintops, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly medial loam
AB—7 to 15 inches; paragravelly medial loam
Bw1—15 to 29 inches; paragravelly loam
Bw2—29 to 44 inches; very paragravelly clay loam
BCt—44 to 69 inches; extremely paragravelly clay loam
Crt—69 to 79 inches; weathered bedrock

Characteristics of Chintimini

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks
Downslope shape: Linear
Across-slope shape: Linear
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 60 inches to paralithic bedrock; 50 to 70 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A—4 to 9 inches; very gravelly medial loam
AB—9 to 20 inches; extremely gravelly medial loam
Bw—20 to 38 inches; very cobbly clay loam
C—38 to 47 inches; very paragravelly clay loam
Cr—47 to 51 inches; weathered bedrock
R—51 to 55 inches; unweathered bedrock

Dissimilar Minor Components

Oldblue soils
Percentage of map unit: 4 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Blodgett soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Burntwoods soils
Percentage of map unit: 3 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Major Uses

Fiverivers, Grassmountain, and Chintimini—forestland, recreation, wildlife habitat

Major Management Limitations

Fiverivers, Grassmountain, and Chintimini soils—content of rock fragments, slope
Fiverivers—depth to bedrock

66—Fluvents-Fluvaquents complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 120 to 550 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Fluvents and similar soils: 53 percent
Fluvaquents and similar soils: 37 percent
Dissimilar minor components: 10 percent

Characteristics of Fluvents

Setting
Landform: Convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Recent loamy alluvium over stratified extremely gravelly loamy and sandy alluvium derived from igneous rock
Slope range: 0 to 2 percent
Depth to restrictive feature: 20 to 80 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7w

Typical profile
A1—0 to 9 inches; loam
A2—9 to 27 inches; loam
A3—27 to 35 inches; gravelly sandy loam
2C—35 to 60 inches; stratified extremely gravelly sand to very gravelly loamy sand

Characteristics of Fluvaquents

Setting
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Recent loamy alluvium over stratified very gravelly loamy and sandy alluvium derived from igneous rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 8 to 24 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7w

Typical profile
A1—0 to 8 inches; silt loam
A2—8 to 24 inches; silt loam
C—24 to 60 inches; stratified very gravelly sandy loam to silt loam

Dissimilar Minor Components

Chehalis soils
Percentage of map unit: 5 percent
Landform: Linear areas of flood plains

Riverwash
Percentage of map unit: 5 percent
Landform: Flood plains consisting of unstabilized channel sediment

Major Uses

Forestland, wildlife habitat, recreation

Major Management Limitations

Fluvents—content of sand, flooding, depth to saturated zone
Fluvaquents—flooding, depth to saturated zone

67—Fluvents-Fluvaquents complex, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 180 to 300 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Fluvents, high precipitation, and similar soils: 50 percent
Fluvaquents, high precipitation, and similar soils: 45 percent
Dissimilar minor components: 5 percent

Characteristics of Fluvents, High Precipitation

Setting
Landform: Linear to slightly convex flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Recent loamy alluvium over stratified extremely gravelly loamy and sandy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 80 inches to strongly contrasting textural stratification

Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7w

Typical profile
A1—0 to 9 inches; loam
A2—9 to 27 inches; loam
A3—27 to 35 inches; gravelly sandy loam
2C—35 to 60 inches; stratified extremely gravelly sand to very gravelly loamy sand

Characteristics of Fluvaquents, High Precipitation

Setting
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave
Across-slope shape: Linear

Properties and qualities
Parent material: Recent loamy alluvium over stratified very gravelly and loamy alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 8 to 24 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7w

Typical profile
A1—0 to 8 inches; silt loam
A2—8 to 24 inches; silt loam
C—24 to 60 inches; stratified very gravelly sandy loam to silt loam

Dissimilar Minor Components

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Chapman soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear areas of flood plains

Chehalis soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Cloquato soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of flood plains

Newberg soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Major Uses

Native pasture, recreation, forestland, wildlife habitat

Major Management Limitations

Fluvents—flooding
Fluvaquents—flooding, depth to saturated zone

68—Formader-Hemcross complex, 3 to 35 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Formader and similar soils: 50 percent
Hemcross and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Formader

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks, mountaintops
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 3 to 35 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; gravelly medial loam
Bw—15 to 27 inches; gravelly clay loam
Cr—27 to 37 inches; weathered bedrock

Characteristics of Hemcross

Setting
Landform: Linear and concave areas of mountain slopes
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 3 to 35 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 26.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 4 inches; medial loam
A2—4 to 10 inches; medial loam
AB—10 to 19 inches; medial loam
Bw1—19 to 26 inches; medial clay loam
Bw2—26 to 38 inches; medial clay loam
Bw3—38 to 48 inches; medial clay loam
Bw4—48 to 68 inches; medial clay loam

Dissimilar Minor Components

Klistan soils
Percentage of map unit: 4 percent
Landform: Linear and concave areas of mountain slopes

Honeygrove soils, basalt bedrock
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Shivigny soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Harslow soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Major Uses

Formader and Hemcross—forestland, recreation, wildlife habitat

Major Management Limitations

Formader and Hemcross—slope
Formader—depth to bedrock

69—Formader-Hemcross complex, 35 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Formader and similar soils: 50 percent
Hemcross and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Formader

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 35 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; gravelly medial loam
Bw—15 to 27 inches; gravelly clay loam
Cr—27 to 37 inches; weathered bedrock

Characteristics of Hemcross

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 35 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 26.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 4 inches; medial loam
A2—4 to 10 inches; medial loam
AB—10 to 19 inches; medial loam
Bw1—19 to 26 inches; medial clay loam
Bw2—26 to 38 inches; medial clay loam
Bw3—38 to 48 inches; medial clay loam
Bw4—48 to 68 inches; medial clay loam

Dissimilar Minor Components

Harslow soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Klistan soils
Percentage of map unit: 5 percent
Landform: Linear and concave areas of mountain slopes

Honeygrove soils, basalt bedrock
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Kilchis soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Shivigny soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks

Major Uses

Formader and Hemcross—forestland, recreation, wildlife habitat

Major Management Limitations

Formader and Hemcross—slope
Formader—depth to bedrock

70—Formader-Klistan-Hemcross complex, 60 to 80 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Formader and similar soils: 35 percent
Klistan and similar soils: 30 percent
Hemcross and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Formader

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders
Geomorphic position (three-dimensional): Upper third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (representative): Southeast
Aspect (range): North to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 80 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; gravelly medial loam
Bw—15 to 27 inches; gravelly clay loam
Cr—27 to 37 inches; weathered bedrock

Characteristics of Klistan

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks
Downslope shape: Linear, concave
Across-slope shape: Linear
Aspect (representative): Southeast
Aspect (range): North to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 80 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 17 inches; very gravelly medial loam
Bw1—17 to 25 inches; very gravelly medial loam

Bw2—25 to 43 inches; very cobbly medial loam
BC—43 to 56 inches; extremely cobbly medial loam
R—56 to 60 inches; unweathered bedrock

Characteristics of Hemcross

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks
Downslope shape: Concave
Across-slope shape: Concave
Aspect (representative): Southeast
Aspect (range): North to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 80 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 26.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 4 inches; medial loam
A2—4 to 10 inches; medial loam
AB—10 to 19 inches; medial loam
Bw1—19 to 26 inches; medial clay loam
Bw2—26 to 38 inches; medial clay loam
Bw3—38 to 48 inches; medial clay loam
Bw4—48 to 68 inches; medial clay loam

Dissimilar Minor Components

Harslow soils
Percentage of map unit: 7 percent
Landform: Convex and linear areas of mountain slopes

Kilchis soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes

Rock outcrop
Percentage of map unit: 4 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Formader, Klistan, and Hemcross—forestland, recreation, wildlife habitat

Major Management Limitations

Formader, Klistan, and Hemcross—slope
Formader—depth to bedrock

71—Gelderman-Jory complex, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 1,500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Gelderman and similar soils: 47 percent
Jory, basalt bedrock, and similar soils: 42 percent
Dissimilar minor components: 11 percent

Characteristics of Gelderman

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Convex, linear
Across-slope shape: Linear, convex

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A—0 to 5 inches; silty clay loam
AB—5 to 10 inches; silty clay loam
Bt1—10 to 24 inches; clay
Bt2—24 to 30 inches; paragravelly clay
Cr—30 to 40 inches; weathered bedrock

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes

Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Convex, linear, concave

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay
Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Dissimilar Minor Components

Nekia soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Cottrell soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Ritner soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Gelderman soils, stony surface
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Witzel soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Gelderman—content of clay, depth to bedrock
Jory—content of clay

72—Goodin-Dupee-Chehulpum complex, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Goodin and similar soils: 30 percent
Dupee and similar soils: 21 percent
Chehulpum and similar soils: 20 percent
Dissimilar minor components: 29 percent

Characteristics of Goodin

Setting
Landform: Convex and linear areas of hillslopes

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
A1—0 to 3 inches; silty clay loam
A2—3 to 9 inches; silty clay loam
Bt1—9 to 16 inches; silty clay
Bt2—16 to 21 inches; silty clay
BCt—21 to 29 inches; very paragravelly clay
Cr—29 to 39 inches; weathered bedrock

Characteristics of Dupee

Setting
Landform: Concave areas of hillslopes
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes

Downslope shape: Linear
Across-slope shape: Concave, linear

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam
AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Characteristics of Chehulpum

Setting
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Convex, linear
Across-slope shape: Linear, convex

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 3 to 12 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 6e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 12 inches; paragravelly silt loam
2Cr—12 to 22 inches; weathered bedrock

Dissimilar Minor Components

Hazelair soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Helmick soils
Percentage of map unit: 7 percent
Landform: Concave and linear areas of hillslopes

Willakenzie soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Helvetia soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of hillslopes

Melbourne soils
Percentage of map unit: 2 percent
Landform: Linear areas of hills

Panther soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, homesite development

Major Management Limitations

Goodin—content of clay, depth to bedrock
Dupee—depth to saturated zone, content of clay, shrink-swell potential
Chehulpum—depth to bedrock

73—Goodin-Dupee-Chehulpum complex, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Goodin and similar soils: 31 percent
Chehulpum and similar soils: 21 percent
Dupee and similar soils: 21 percent
Dissimilar minor components: 27 percent

Characteristics of Goodin

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): Southeast
Aspect (range): Northeast to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A1—0 to 3 inches; silty clay loam
A2—3 to 9 inches; silty clay loam
Bt1—9 to 16 inches; silty clay
Bt2—16 to 21 inches; silty clay
BCt—21 to 29 inches; very paragravelly clay
Cr—29 to 39 inches; weathered bedrock

Characteristics of Chehulpum

Setting
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Shoulders, footslopes
Geomorphic position (three-dimensional): Side slopes, base slopes
Downslope shape: Convex, concave
Across-slope shape: Convex, linear
Aspect (representative): Southeast
Aspect (range): Northeast to south (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 12 inches; paragravelly silt loam
2Cr—12 to 22 inches; weathered bedrock

Characteristics of Dupee

Setting
Landform: Concave areas of hillslopes
Geomorphic position (two-dimensional): Footslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Concave
Across-slope shape: Linear, concave
Aspect (representative): Southeast
Aspect (range): Northeast to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam
AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Dissimilar Minor Components

Hazelair soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Helmick soils
Percentage of map unit: 7 percent
Landform: Concave and linear areas of hillslopes

Willakenzie soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Helvetia soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Melbourne soils
Percentage of map unit: 2 percent
Landform: Linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, homesite development

Major Management Limitations

Goodin—content of clay, slope, depth to bedrock
Dupee—depth to saturated zone, content of clay, shrink-swell potential, slope
Chehulpum—slope, depth to bedrock

74—Grassmountain-Fiverivers-Chintimini complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Grassmountain and similar soils: 40 percent
Fiverivers and similar soils: 30 percent
Chintimini and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Grassmountain

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, mountain bases, lower third of mountain flanks
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (representative): West
Aspect (range): Southeast to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly medial loam
AB—7 to 15 inches; paragravelly medial loam
Bw1—15 to 29 inches; paragravelly loam
Bw2—29 to 44 inches; very paragravelly clay loam
BCt—44 to 69 inches; extremely paragravelly clay loam
Crt—69 to 79 inches; weathered bedrock

Characteristics of Fiverivers

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, mountaintops, upper third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (representative): West
Aspect (range): Southeast to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very gravelly medial loam
AB—4 to 9 inches; very gravelly medial loam
Bw—9 to 15 inches; gravelly loam
Bt1—15 to 25 inches; extremely paragravelly clay loam
Bt2—25 to 36 inches; extremely paragravelly clay loam
Crt—36 to 46 inches; weathered bedrock

Characteristics of Chintimini

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks
Downslope shape: Concave
Across-slope shape: Linear, concave
Aspect (representative): West
Aspect (range): Southeast to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive features: 40 to 60 inches to paralithic bedrock; 50 to 70 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A—4 to 9 inches; very gravelly medial loam
AB—9 to 20 inches; extremely gravelly medial loam
Bw—20 to 38 inches; very cobbly clay loam
C—38 to 47 inches; very paragravelly clay loam
Cr—47 to 51 inches; weathered bedrock
R—51 to 55 inches; unweathered bedrock

Dissimilar Minor Components

Blodgett soils
Percentage of map unit: 5 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Burntwoods soils
Percentage of map unit: 5 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Oldblue soils
Percentage of map unit: 5 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes

Major Uses

Grassmountain, Fiverivers, and Chintimini—forestland, recreation, wildlife habitat

Major Management Limitations

Grassmountain, Fiverivers, and Chintimini—slope
Fiverivers—depth to bedrock

75—Harslow-Kilchis-Rock outcrop complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Harslow and similar soils: 40 percent
Kilchis and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Harslow

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; very gravelly medial loam
A2—6 to 11 inches; very gravelly medial loam
AB—11 to 17 inches; very gravelly medial loam
Bw—17 to 26 inches; extremely cobbly medial loam
BC—26 to 34 inches; extremely cobbly medial loam
R—34 to 38 inches; unweathered bedrock

Characteristics of Kilchis

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; cobbly medial loam
Bw—9 to 14 inches; very cobbly loam
C—14 to 17 inches; very cobbly loam
R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Setting
Landform: Crests and shoulders of mountain slopes

Properties and qualities
Parent material: Basalt
Slope range: 60 to 90 percent
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Interpretive groups
Land capability subclass (nonirrigated): 8

Typical profile
R—0 to 60 inches; unweathered bedrock

Dissimilar Minor Components

Klistan soils
Percentage of map unit: 9 percent
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks

Formader soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Hemcross soils
Percentage of map unit: 3 percent
Landform: Concave areas of mountain slopes

Major Uses

Harslow and Kilchis—forestland, recreation, wildlife habitat
Rock outcrop—quarries in some areas, recreation, wildlife habitat

Major Management Limitations

Harslow and Kilchis—slope, depth to bedrock
Kilchis—content of large stones in and on the soil

76—Harslow-Klistan-Rock outcrop complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Harslow and similar soils: 35 percent
Klistan and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Harslow

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): North
Aspect (range): West to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; very gravelly medial loam
A2—6 to 11 inches; very gravelly medial loam
AB—11 to 17 inches; very gravelly medial loam
Bw—17 to 26 inches; extremely cobbly medial loam
BC—26 to 34 inches; extremely cobbly medial loam
R—34 to 38 inches; unweathered bedrock

Characteristics of Klistan

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Linear
Aspect (representative): North
Aspect (range): West to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 17 inches; very gravelly medial loam
Bw1—17 to 25 inches; very gravelly medial loam
Bw2—25 to 43 inches; very cobbly medial loam
BC—43 to 56 inches; extremely cobbly medial loam
R—56 to 60 inches; unweathered bedrock

Characteristics of Rock Outcrop

Setting
Landform: Crests and shoulders of mountain slopes

Properties and qualities
Parent material: Basalt
Slope range: 60 to 90 percent
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Interpretive groups
Land capability subclass (nonirrigated): 8

Typical profile
R—0 to 60 inches; unweathered bedrock

Dissimilar Minor Components

Kilchis soils
Percentage of map unit: 10 percent
Landform: Convex areas of mountain slopes

Formader soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Major Uses

Harslow and Klistan—forestland, recreation, wildlife habitat
Rock outcrop—quarries in some areas, recreation, wildlife habitat

Major Management Limitations

Harslow and Klistan—slope
Harlsow—depth to bedrock

77—Hazelair silty clay loam, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Hazelair and similar soils: 81 percent
Dissimilar minor components: 19 percent

Characteristics of Hazelair

Setting
Landform: Hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Convex, linear
Across-slope shape: Linear, convex

Properties and qualities
Parent material: Silty glaciolacustrine deposits and colluvium over clayey residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 11 to 18 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 7 inches; silty clay loam
A—7 to 11 inches; silty clay loam
Bw—11 to 18 inches; silty clay
2C1—18 to 24 inches; clay
2C2—24 to 30 inches; clay
2Cr—30 to 40 inches; weathered bedrock

Dissimilar Minor Components

Helmick soils
Percentage of map unit: 10 percent
Landform: Concave and linear areas of hillslopes

Chehulpum soils
Percentage of map unit: 3 percent
Landform: Convex areas of hillslopes

Goodin soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

Melbourne soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, depth to bedrock

78—Hazelair silty clay loam, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Hazelair and similar soils: 81 percent
Dissimilar minor components: 19 percent

Characteristics of Hazelair

Setting
Landform: Hillslopes
Geomorphic position (two-dimensional): Shoulders, backslopes, footslopes
Geomorphic position (three-dimensional): Side slopes, nose slopes, base slopes
Downslope shape: Concave, convex, linear
Across-slope shape: Convex, linear
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits and colluvium over clayey residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 11 to 18 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 7 inches; silty clay loam
A—7 to 11 inches; silty clay loam
Bw—11 to 18 inches; silty clay
2C1—18 to 24 inches; clay
2C2—24 to 30 inches; clay
2Cr—30 to 40 inches; weathered bedrock

Dissimilar Minor Components

Helmick soils
Percentage of map unit: 10 percent
Landform: Concave and linear areas of hillslopes

Chehulpum soils
Percentage of map unit: 3 percent
Landform: Convex areas of hillslopes

Goodin soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

Melbourne soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, slope, depth to bedrock

79—Hazelair silty clay loam, 20 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Hazelair and similar soils: 81 percent
Dissimilar minor components: 19 percent

Characteristics of Hazelair

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Silty glaciolacustrine deposits and colluvium over clayey residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 11 to 18 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 7 inches; silty clay loam
A—7 to 11 inches; silty clay loam

Bw—11 to 18 inches; silty clay
2C1—18 to 24 inches; clay
2C2—24 to 30 inches; clay
2Cr—30 to 40 inches; weathered bedrock

Dissimilar Minor Components

Helmick soils
Percentage of map unit: 10 percent
Landform: Concave and linear areas of hillslopes

Chehulpum soils
Percentage of map unit: 3 percent
Landform: Convex areas of hillslopes

Goodin soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

Melbourne soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, slope, depth to bedrock

80—Hazelair silty clay loam, 7 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Hazelair and similar soils: 82 percent
Dissimilar minor components: 18 percent

Characteristics of Hazelair

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Interfluves, nose slopes, side slopes, base slopes
Downslope shape: Linear, convex, concave

Across-slope shape: Convex, linear
Aspect (representative): East
Aspect (range): Northeast to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt over clayey residuum derived from tuff
Slope range: 7 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 11 to 15 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A—0 to 4 inches; silty clay loam
AB—4 to 11 inches; silty clay loam
Bw—11 to 15 inches; silty clay
2C1—15 to 21 inches; clay
2C2—21 to 36 inches; paragravelly clay
2Cr—36 to 46 inches; weathered bedrock

Dissimilar Minor Components

Dixonville soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 5 percent
Landform: Linear areas of hillslopes

Philomath soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of slumps

Major Uses

Forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, slope, depth to bedrock

81—Helmick silt loam, 3 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Helmick and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Helmick

Setting
Landform: Hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Convex, linear
Across-slope shape: Linear, concave

Properties and qualities
Parent material: Silty glaciolacustrine deposits over clayey residuum derived from sandstone and siltstone
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 10 to 16 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e

Typical profile
A—0 to 5 inches; silt loam
Bw1—5 to 10 inches; silty clay loam
Bw2—10 to 16 inches; silty clay loam
2BC—16 to 22 inches; clay
2C1—22 to 28 inches; clay
2C2—28 to 36 inches; clay
2C3—36 to 50 inches; clay
2C4—50 to 62 inches; clay

Dissimilar Minor Components

Hazelair soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Helvetia soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of terraces

Steiwer soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves

Wellsdale soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Willakenzie soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Major Use

Cropland

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

82—Helvetia silt loam, 2 to 7 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Helvetia and similar soils: 94 percent
Dissimilar minor components: 6 percent

Characteristics of Helvetia

Setting
Landform: Terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty glaciolacustrine deposits over silty and clayey alluvium
Slope range: 2 to 7 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 48 to 72 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap1—0 to 5 inches; silt loam
Ap2—5 to 10 inches; silty clay loam
BAt—10 to 16 inches; silty clay
Bt1—16 to 28 inches; silty clay
Bt2—28 to 48 inches; silty clay
BC—48 to 60 inches; silty clay loam

Dissimilar Minor Components

Helmick soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Use

Cropland

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

83—Hemcross-Klistan complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Hemcross and similar soils: 55 percent
Klistan and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Hemcross

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes

Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks, mountaintops
Downslope shape: Concave, linear
Across-slope shape: Concave, linear
Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 26.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 4 inches; medial loam
A2—4 to 10 inches; medial loam
AB—10 to 19 inches; medial loam
Bw1—19 to 26 inches; medial clay loam
Bw2—26 to 38 inches; medial clay loam
Bw3—38 to 48 inches; medial clay loam
Bw4—48 to 68 inches; medial clay loam

Characteristics of Klistan

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Linear
Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 17 inches; very gravelly medial loam
Bw1—17 to 25 inches; very gravelly medial loam
Bw2—25 to 43 inches; very cobbly medial loam
BC—43 to 56 inches; extremely cobbly medial loam
R—56 to 60 inches; unweathered bedrock

Dissimilar Minor Components

Formader soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Harslow soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Honeygrove soils, basalt bedrock
Percentage of map unit: 1 percent
Landform: Concave areas of mountain slopes

Shivigny soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks

Major Uses

Hemcross and Klistan—forestland (fig. 12), recreation, wildlife habitat

Major Management Limitation

Hemcross and Klistan—slope

84—Hemcross-Klistan complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Figure 12.—Area of Hemcross-Klistan complex, 5 to 30 percent slopes. Douglas fir forest in background, and logging slash piled for burning in winter in midground.

Map Unit Composition

Hemcross and similar soils: 45 percent
Klistan and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Hemcross

Setting

Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Concave, linear
Aspect (range): All aspects

Properties and qualities

Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 26.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 4 inches; medial loam
A2—4 to 10 inches; medial loam
AB—10 to 19 inches; medial loam
Bw1—19 to 26 inches; medial clay loam
Bw2—26 to 38 inches; medial clay loam
Bw3—38 to 48 inches; medial clay loam
Bw4—48 to 68 inches; medial clay loam

Characteristics of Klistan

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Linear
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 17 inches; very gravelly medial loam
Bw1—17 to 25 inches; very gravelly medial loam
Bw2—25 to 43 inches; very cobbly medial loam
BC—43 to 56 inches; extremely cobbly medial loam
R—56 to 60 inches; unweathered bedrock

Dissimilar Minor Components

Formader soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Harslow soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Honeygrove soils, basalt bedrock
Percentage of map unit: 3 percent
Landform: Linear and concave areas of mountain slopes

Shivigny soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Major Uses

Hemcross and Klistan—forestland, recreation, wildlife habitat

Major Management Limitation

Hemcross and Klistan—slope

85—Holcomb silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 650 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Holcomb and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Holcomb

Setting
Landform: Convex areas of terraces

Properties and qualities
Parent material: Silty alluvium over silty and clayey glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 15 to 30 inches to abrupt textural change
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 18 to 24 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 6 inches; silt loam
A—6 to 18 inches; silt loam
E—18 to 24 inches; silty clay loam
2Btg—24 to 34 inches; clay
2BCtg—34 to 50 inches; silty clay
3C—50 to 60 inches; silt loam

Dissimilar Minor Components

Dayton soils
Percentage of map unit: 10 percent
Landform: Concave and linear areas of terraces

Woodburn soils
Percentage of map unit: 3 percent
Landform: Convex areas of terraces

Coburg soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of terraces

Major Use

Cropland

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

86—Honeygrove-Peavine complex, 3 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Honeygrove and similar soils: 50 percent
Peavine, sedimentary bedrock, and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Honeygrove

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountaintops, mountain bases
Downslope shape: Concave, linear
Across-slope shape: Linear, concave
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone

Slope range: 3 to 30 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 6 inches; paragravelly silty clay loam
BAt—6 to 17 inches; silty clay loam
Bt1—17 to 31 inches; silty clay
Bt2—31 to 43 inches; silty clay
Bt3—43 to 56 inches; silty clay
Bt4—56 to 75 inches; paragravelly silty clay
Crt—75 to 85 inches; weathered bedrock

Characteristics of Peavine, Sedimentary Bedrock

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; paragravelly silty clay loam
BAt—4 to 17 inches; silty clay loam
Bt1—17 to 23 inches; paragravelly silty clay
Bt2—23 to 31 inches; very paragravelly silty clay
BCt—31 to 36 inches; very paragravelly silty clay
Crt—36 to 46 inches; weathered bedrock

Dissimilar Minor Components

Preacher soils
Percentage of map unit: 5 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Bohannon soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Meda soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of alluvial fans
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Major Uses

Honeygrove and Peavine—forestland, limited homesite development, recreation, wildlife habitat

Major Management Limitations

Honeygrove and Peavine—slope, content of clay
Peavine—depth to bedrock

87—Honeygrove-Peavine complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Honeygrove and similar soils: 45 percent
Peavine, sedimentary bedrock, and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Honeygrove

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountain bases
Downslope shape: Concave, linear
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone

Slope range: 30 to 60 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 6 inches; paragravelly silty clay loam
BAt—6 to 17 inches; silty clay loam
Bt1—17 to 31 inches; silty clay
Bt2—31 to 43 inches; silty clay
Bt3—43 to 56 inches; silty clay
Bt4—56 to 75 inches; paragravelly silty clay
Crt—75 to 85 inches; weathered bedrock

Characteristics of Peavine, Sedimentary Bedrock

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; paragravelly silty clay loam
BAt—4 to 17 inches; silty clay loam
Bt1—17 to 23 inches; paragravelly silty clay
Bt2—23 to 31 inches; very paragravelly silty clay
BCt—31 to 36 inches; very paragravelly silty clay
Crt—36 to 46 inches; weathered bedrock

Dissimilar Minor Components

Bohannon soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Preacher soils
Percentage of map unit: 5 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Slickrock soils
Percentage of map unit: 4 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Digger soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Remote soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Major Uses

Honeygrove and Peavine—forestland, recreation, wildlife habitat

Major Management Limitations

Honeygrove and Peavine—slope, content of clay
Peavine—depth to bedrock

88—Honeygrove-Peavine complex, basalts, 3 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Honeygrove, basalt bedrock, and similar soils: 50 percent
Peavine, basalt bedrock, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Honeygrove, Basalt Bedrock

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes

Geomorphic position (three-dimensional): Mountaintops, mountain bases, lower third of mountain flanks
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (representative): North
Aspect (range): Southwest to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; silty clay loam
BAt—9 to 15 inches; silty clay
Bt1—15 to 22 inches; clay
Bt2—22 to 37 inches; clay
Bt3—37 to 50 inches; clay
BCt—50 to 67 inches; clay

Characteristics of Peavine, Basalt Bedrock

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): North
Aspect (range): Southwest to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; silty clay loam
BAt—6 to 13 inches; silty clay loam

Bt—13 to 32 inches; silty clay
BCt—32 to 37 inches; clay
Cr—37 to 47 inches; weathered bedrock

Dissimilar Minor Components

Hemcross soils
Percentage of map unit: 6 percent
Landform: Linear and concave areas of mountain slopes

Shivigny soils
Percentage of map unit: 6 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Formader soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Major Uses

Honeygrove and Peavine—forestland, limited homesite development, recreation, wildlife habitat

Major Management Limitations

Honeygrove and Peavine—slope, content of clay
Peavine—depth to bedrock

89—Honeygrove-Peavine complex, basalts, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Honeygrove, basalt bedrock, and similar soils: 45 percent
Peavine, basalt bedrock, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Honeygrove, Basalt Bedrock

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; silty clay loam
BAt—9 to 15 inches; silty clay
Bt1—15 to 22 inches; clay
Bt2—22 to 37 inches; clay
Bt3—37 to 50 inches; clay
BCt—50 to 67 inches; clay

Characteristics of Peavine, Basalt Bedrock

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; silty clay loam
BAt—6 to 13 inches; silty clay loam
Bt—13 to 32 inches; silty clay
BCt—32 to 37 inches; clay
Cr—37 to 47 inches; weathered bedrock

Dissimilar Minor Components

Hemcross soils
Percentage of map unit: 6 percent
Landform: Linear and concave areas of mountain slopes

Shivigny soils
Percentage of map unit: 6 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Formader soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Major Uses

Honeygrove and Peavine—forestland, recreation, wildlife habitat

Major Management Limitations

Honeygrove and Peavine—slope, content of clay
Peavine—depth to bedrock

90—Honeygrove-Shivigny complex, 3 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Honeygrove, basalt bedrock, and similar soils: 55 percent
Shivigny and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Honeygrove, Basalt Bedrock

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Concave, linear
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; silty clay loam
BAt—9 to 15 inches; silty clay
Bt1—15 to 22 inches; clay
Bt2—22 to 37 inches; clay
Bt3—37 to 50 inches; clay
BCt—50 to 67 inches; clay

Characteristics of Shivigny

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; very gravelly clay loam
BA—7 to 13 inches; very gravelly clay loam
Bt1—13 to 23 inches; extremely gravelly silty clay
Bt2—23 to 34 inches; extremely gravelly silty clay
Bt3—34 to 43 inches; extremely cobbly silty clay
BCt—43 to 68 inches; extremely cobbly silty clay
Crt—68 to 78 inches; weathered bedrock

Dissimilar Minor Components

Hemcross soils
Percentage of map unit: 4 percent
Landform: Linear and concave areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes

Formader soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Klistan soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of mountain slopes

Harslow soils
Percentage of map unit: 1 percent
Landform: Convex and linear areas of mountain slopes

Kilchis soils
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes

Major Uses

Forestland, limited homesite development, recreation, wildlife habitat

Major Management Limitations

Honeygrove and Shivigny—slope, content of clay

91—Jory silty clay loam, basalt bedrock, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 2,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Jory, basalt bedrock, and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Linear
Across-slope shape: Convex, linear, concave

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None

Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay
Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Dissimilar Minor Components

Gelderman soils
Percentage of map unit: 10 percent
Landform: Convex and linear areas of hillslopes

Cottrell soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Ritner soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Witham soils
Percentage of map unit: 1 percent
Landform: Concave areas of alluvial fans

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitation

Content of clay

92—Jory silty clay loam, basalt bedrock, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 2,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Jory, basalt bedrock, and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Linear
Across-slope shape: Concave, convex, linear
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay
Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Dissimilar Minor Components

Gelderman soils
Percentage of map unit: 10 percent
Landform: Convex and linear areas of hillslopes

Cottrell soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Ritner soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Witham soils
Percentage of map unit: 1 percent
Landform: Concave areas of alluvial fans

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Content of clay, slope

93—Jory silty clay loam, basalt bedrock, 20 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 2,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Jory, basalt bedrock, and similar soils: 84 percent
Dissimilar minor components: 16 percent

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Linear, convex, concave
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 20 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay
Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Dissimilar Minor Components

Gelderman soils
Percentage of map unit: 10 percent
Landform: Convex and linear areas of hillslopes

MacDunn soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Ritner soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Cottrell soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Witham soils
Percentage of map unit: 1 percent
Landform: Concave areas of alluvial fans

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Content of clay, slope

94—Jory silty clay loam, sedimentary bedrock, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory, sedimentary bedrock, and similar soils: 81 percent
Dissimilar minor components: 19 percent

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Concave, linear, convex

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Bellpine soils
Percentage of map unit: 13 percent
Landform: Convex and linear areas of hillslopes

Dupee soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Rickreall soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitation

Content of clay

95—Jory silty clay loam, sedimentary bedrock, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory, sedimentary bedrock, and similar soils: 81 percent
Dissimilar minor components: 19 percent

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Linear, convex, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Bellpine soils
Percentage of map unit: 13 percent
Landform: Convex and linear areas of hillslopes

Dupee soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Rickreall soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Content of clay, slope

96—Jory silty clay loam, sedimentary bedrock, 20 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory, sedimentary bedrock, and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Linear
Across-slope shape: Linear, convex, concave
Aspect (representative): East
Aspect (range): Northwest to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Dissimilar Minor Components

Bellpine soils
Percentage of map unit: 10 percent
Landform: Convex and linear areas of hillslopes

Dupee soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Rickreall soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Content of clay, slope

97—Jory-Dupee complex, 2 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 300 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory, sedimentary bedrock, and similar soils: 72 percent
Dupee and similar soils: 22 percent
Dissimilar minor components: 6 percent

Characteristics of Jory, Sedimentary Bedrock

Setting
Landform: Linear areas of hills
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Linear
Across-slope shape: Convex, linear

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e

Typical profile
A—0 to 7 inches; silty clay loam
AB—7 to 15 inches; silty clay loam
BA—15 to 23 inches; silty clay
Bt1—23 to 35 inches; clay
Bt2—35 to 51 inches; clay
Bt3—51 to 60 inches; paragravelly silty clay

Characteristics of Dupee

Setting
Landform: Concave areas of swales
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Linear, concave
Across-slope shape: Concave

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam
AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Dissimilar Minor Components

Bellpine soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Jory—content of clay
Dupee—depth to saturated zone, content of clay, shrink-swell potential

98—Jory-Gelderman complex, 12 to 30 percent slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 2
Elevation: 300 to 2,200 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Jory, basalt bedrock, and similar soils: 63 percent
Gelderman and similar soils: 22 percent
Dissimilar minor components: 15 percent

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes and mountain slopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Convex, concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay

Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Characteristics of Gelderman

Setting
Landform: Convex and linear areas of hillslopes and mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, footslopes
Geomorphic position (three-dimensional): Side slopes, base slopes, nose slopes
Downslope shape: Linear, convex, concave
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 12 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 5 inches; silty clay loam
A2—5 to 10 inches; silty clay loam
Bt1—10 to 24 inches; clay
Bt2—24 to 30 inches; paragravelly clay
Cr—30 to 40 inches; weathered bedrock

Dissimilar Minor Components

MacDunn soils
Percentage of map unit: 8 percent
Landform: Convex and linear areas of mountain slopes

Ritner soils
Percentage of map unit: 4 percent
Landform: Hills, mountains

Cottrell soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Witham soils
Percentage of map unit: 1 percent
Landform: Concave areas of alluvial fans

Witzel soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes and mountain slopes

Major Uses

Forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Jory—content of clay, slope
Gelderman—content of clay, slope, depth to bedrock

99—Jory-Nekia complex, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory, basalt bedrock, and similar soils: 55 percent
Nekia and similar soils: 32 percent
Dissimilar minor components: 13 percent

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Linear, concave, convex
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay

Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Characteristics of Nekia

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Shoulders, backslopes, footslopes
Geomorphic position (three-dimensional): Nose slopes, base slopes, side slopes
Downslope shape: Convex, concave, linear
Across-slope shape: Convex, linear
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 9 inches; silty clay loam
BA—9 to 18 inches; clay
Bt1—18 to 24 inches; clay
Bt2—24 to 36 inches; clay
R—36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

MacDunn soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Ritner soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Cottrell soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Witzel soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Nekia—content of clay, slope, depth to bedrock
Jory—content of clay, slope

100—Jory-Nekia complex, 20 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Jory, basalt bedrock, and similar soils: 55 percent
Nekia and similar soils: 32 percent
Dissimilar minor components: 13 percent

Characteristics of Jory, Basalt Bedrock

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Linear
Across-slope shape: Linear, convex, concave
Aspect (representative): Northeast
Aspect (range): West to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 20 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 16 inches; silty clay
AB—16 to 19 inches; clay
Bt1—19 to 29 inches; clay
Bt2—29 to 48 inches; clay
Bt3—48 to 100 inches; clay

Characteristics of Nekia

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (representative): Northeast
Aspect (range): West to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 20 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 9 inches; silty clay loam
BA—9 to 18 inches; clay
Bt1—18 to 24 inches; clay
Bt2—24 to 36 inches; clay
R—36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

MacDunn soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Ritner soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Cottrell soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Witzel soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Nekia—content of clay, slope, depth to bedrock
Jory—content of clay, slope

101—Kirkendall-Nekoma-Quosatana complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 200 to 750 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Kirkendall and similar soils: 40 percent
Nekoma and similar soils: 30 percent
Quosatana and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Kirkendall

Setting
Landform: Bars, convex areas of flood plains

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 36 to 47 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
A1—0 to 8 inches; silt loam
A2—8 to 17 inches; silt loam
Bw—17 to 36 inches; silt loam
BC—36 to 47 inches; silt loam
C—47 to 68 inches; loam

Characteristics of Nekoma

Setting
Landform: Linear to slightly convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave
Across-slope shape: Linear

Properties and qualities
Parent material: Recent loamy alluvium derived from sandstone and siltstone

Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 48 to 72 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 5 inches; silt loam
A—5 to 14 inches; silt loam
Bw—14 to 26 inches; fine sandy loam
C1—26 to 48 inches; stratified fine sandy loam to loamy fine sand
C2—48 to 60 inches; stratified loamy fine sand to fine sandy loam

Characteristics of Quosatana

Setting
Landform: Depressions of flood plains

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): At the surface to a depth of 14 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
A—0 to 14 inches; silt loam
Bg—14 to 39 inches; silt loam
BCg—39 to 48 inches; silty clay loam
Cg—48 to 65 inches; stratified loam to silty clay

Dissimilar Minor Components

Eilertsen soils
Percentage of map unit: 4 percent
Landform: Nearly level to gently sloping, slightly convex areas of stream terraces

Fluvaquents
Percentage of map unit: 4 percent
Landform: Depressions of flood plains

Meda soils
Percentage of map unit: 3 percent
Landform: Gently sloping areas of alluvial fans

Treharne soils
Percentage of map unit: 2 percent
Landform: Linear to slightly concave areas of stream terraces

Wasson soils
Percentage of map unit: 2 percent
Landform: Depressions of flood plains

Major Uses

Kirkendall, Nekoma, and Quosatana—cropland, recreation, wildlife habitat
Kirkendall—forestland

Major Management Limitations

Kirkendall and Nekoma—flooding, low soil strength
Quosatana—flooding, depth to saturated zone

102—Klistan-Harslow complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Klistan and similar soils: 50 percent
Harslow and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Klistan

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 17 inches; very gravelly medial loam
Bw1—17 to 25 inches; very gravelly medial loam
Bw2—25 to 43 inches; very cobbly medial loam
BC—43 to 56 inches; extremely cobbly medial loam
R—56 to 60 inches; unweathered bedrock

Characteristics of Harslow

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; very gravelly medial loam
A2—6 to 11 inches; very gravelly medial loam
AB—11 to 17 inches; very gravelly medial loam
Bw—17 to 26 inches; extremely cobbly medial loam
BC—26 to 34 inches; extremely cobbly medial loam
R—34 to 38 inches; unweathered bedrock

Dissimilar Minor Components

Hemcross soils
Percentage of map unit: 6 percent
Landform: Concave areas of mountain slopes

Formader soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of mountain slopes

Shivigny soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks

Honeygrove soils, basalt bedrock
Percentage of map unit: 2 percent
Landform: Linear and concave areas of mountain slopes

Kilchis soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Major Uses

Klistan and Harslow—forestland, recreation, wildlife habitat

Major Management Limitations

Klistan and Harslow—slope
Harslow—depth to bedrock

103—Klistan-Harslow-Hemcross complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Klistan and similar soils: 40 percent
Harslow and similar soils: 25 percent
Hemcross and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Klistan

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks
Downslope shape: Concave, linear

Across-slope shape: Linear
Aspect (representative): Southwest
Aspect (range): East to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 17 inches; very gravelly medial loam
Bw1—17 to 25 inches; very gravelly medial loam
Bw2—25 to 43 inches; very cobbly medial loam
BC—43 to 56 inches; extremely cobbly medial loam
R—56 to 60 inches; unweathered bedrock

Characteristics of Harslow

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): Southwest
Aspect (range): East to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; very gravelly medial loam
A2—6 to 11 inches; very gravelly medial loam
AB—11 to 17 inches; very gravelly medial loam

Bw—17 to 26 inches; extremely cobbly medial loam
BC—26 to 34 inches; extremely cobbly medial loam
R—34 to 38 inches; unweathered bedrock

Characteristics of Hemcross

Setting
Landform: Linear and concave areas of mountain slopes
Aspect (representative): Southwest
Aspect (range): East to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 26.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 4 inches; medial loam
A2—4 to 10 inches; medial loam
AB—10 to 19 inches; medial loam
Bw1—19 to 26 inches; medial clay loam
Bw2—26 to 38 inches; medial clay loam
Bw3—38 to 48 inches; medial clay loam
Bw4—48 to 68 inches; medial clay loam

Dissimilar Minor Components

Formader soils
Percentage of map unit: 7 percent
Landform: Convex and linear areas of mountain slopes

Kilchis soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes

Honeygrove soils, basalt bedrock
Percentage of map unit: 2 percent
Landform: Concave areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Shivigny soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks

Major Uses

Klistan, Harslow, and Hemcross—forestland, recreation, wildlife habitat

Major Management Limitations

Klistan, Harslow, and Hemcross—slope
Harslow—depth to bedrock

104—Laderly-Murtip-Giveout complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Laderly and similar soils: 35 percent
Murtip and similar soils: 30 percent
Giveout and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Laderly

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes
Geomorphic position (three-dimensional): Mountaintops, upper third of mountain flanks, center third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (representative): Northeast
Aspect (range): Southwest to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; very gravelly medial loam
Bw1—15 to 29 inches; very cobbly medial loam
Bw2—29 to 37 inches; extremely cobbly medial loam
R—37 to 41 inches; unweathered bedrock

Characteristics of Murtip

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, mountain bases, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Linear, concave
Aspect (representative): Northeast
Aspect (range): Southwest to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 21.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 19 inches; medial loam
Bw1—19 to 31 inches; medial loam
Bw2—31 to 45 inches; medial loam
BC—45 to 56 inches; gravelly medial loam
Cr—56 to 66 inches; weathered bedrock

Characteristics of Giveout

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (representative): Northeast
Aspect (range): Southwest to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock

Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 16 inches; gravelly medial loam
Bw1—16 to 28 inches; gravelly medial loam
Bw2—28 to 36 inches; gravelly medial loam
Cr—36 to 46 inches; weathered bedrock

Dissimilar Minor Component

Caterl soils
Percentage of map unit: 10 percent
Landform: Linear and concave areas of mountain slopes

Major Uses

Laderly, Murtip, and Giveout—forestland, recreation, wildlife habitat

Major Management Limitations

Laderly, Murtip, and Giveout—slope
Laderly and Giveout—depth to bedrock

105—Linslaw loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Linslaw and similar soils: 91 percent
Dissimilar minor components: 9 percent

Characteristics of Linslaw

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loamy glaciolacustrine deposits over clayey alluvium
Slope range: 0 to 3 percent

Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 16 to 28 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 5 inches; loam
A—5 to 16 inches; loam
Bt—16 to 28 inches; clay loam
BCt—28 to 42 inches; clay loam
2C1—42 to 56 inches; clay
2C2—56 to 60 inches; sandy clay loam

Dissimilar Minor Components

Noti soils
Percentage of map unit: 5 percent
Landform: Narrow drainageways of terraces

Santiam soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of terraces

Major Use

Cropland

Major Management Limitations

Flooding, depth to saturated zone, content of clay

106—Linslaw loam, 3 to 8 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Linslaw and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Linslaw

Setting
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loamy glaciolacustrine deposits over clayey alluvium
Slope range: 3 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 16 to 28 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 16 inches; loam
Bt—16 to 28 inches; clay loam
BCt—28 to 42 inches; clay loam
2C1—42 to 56 inches; clay
2C2—56 to 60 inches; sandy clay loam

Dissimilar Minor Components

Noti soils
Percentage of map unit: 4 percent
Landform: Narrow drainageways of terraces

Santiam soils
Percentage of map unit: 4 percent
Landform: Convex to linear areas of terraces

Major Use

Cropland

Major Management Limitations

Flooding, depth to saturated zone, content of clay

107—Lurnick-Luckiamute complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Lurnick and similar soils: 60 percent
Luckiamute and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Lurnick

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Downslope shape: Linear, convex
Across-slope shape: Linear, convex
Aspect (representative): North
Aspect (range): Southwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock; 30 to 50 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; very cobbly medial loam
Bw1—8 to 22 inches; very cobbly loam
Bw2—22 to 29 inches; extremely cobbly sandy loam
BC—29 to 36 inches; extremely cobbly sandy loam
Cr—36 to 40 inches; weathered bedrock
R—40 to 44 inches; unweathered bedrock

Characteristics of Luckiamute

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (representative): North
Aspect (range): Southwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 60 to 90 percent

Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 6 inches; extremely cobbly medial loam
Bw—6 to 17 inches; extremely cobbly loam
R—17 to 21 inches; unweathered bedrock

Dissimilar Minor Components

Maryspeak soils
Percentage of map unit: 5 percent
Landform: Concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Valsetz soils
Percentage of map unit: 3 percent
Landform: Mountains

Yellowstone soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Major Uses

Lurnick and Luckiamute—forestland, recreation, wildlife habitat

Major Management Limitations

Lurnick and Luckiamute—slope, depth to bedrock, content of large stones on surface
Luckiamute—thickness of surface layer, texture, content of rock fragments

108—Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Lurnick and similar soils: 40 percent
Luckiamute and similar soils: 30 percent

Maryspeak and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Lurnick

Setting

Landform: Convex and linear areas of mountain slopes (fig. 13)
Geomorphic position (two-dimensional): Shoulders, backslopes
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities

Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock; 30 to 50 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Figure 13.—Lurnick very cobbly medial loam that supports vegetation typical of a cryic soil temperature regime in an area of Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; very cobbly medial loam
Bw1—8 to 22 inches; very cobbly loam
Bw2—22 to 29 inches; extremely cobbly sandy loam
BC—29 to 36 inches; extremely cobbly sandy loam
Cr—36 to 40 inches; weathered bedrock
R—40 to 44 inches; unweathered bedrock

Characteristics of Luckiamute

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 6 inches; extremely cobbly medial loam
Bw—6 to 17 inches; extremely cobbly loam
R—17 to 21 inches; unweathered bedrock

Characteristics of Maryspeak

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Linear, concave
Across-slope shape: Concave
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Sandy colluvium derived from sandstone or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 2 inches; moderately decomposed plant material
A1—2 to 4 inches; gravelly medial sandy loam
A2—4 to 9 inches; gravelly medial sandy loam
BA—9 to 13 inches; very gravelly sandy loam
Bw—13 to 34 inches; very gravelly loamy fine sand
BC—34 to 59 inches; very gravelly loamy fine sand
C—59 to 73 inches; very gravelly sandy loam

Dissimilar Minor Components

Valsetz soils
Percentage of map unit: 4 percent
Landform: Mountains

Mulkey soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Yellowstone soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes

Major Uses

Lurnick, Luckiamute, and Maryspeak—forestland, recreation, wildlife habitat

Major Management Limitations

Lurnick, Luckiamute, and Maryspeak—slope
Lurnick and Luckiamute—depth to bedrock, content of large stones on surface
Luckiamute—thickness of surface layer, texture, content of rock fragments

109—MacDunn-Price-Ritner complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 2
Elevation: 240 to 2,200 feet
Mean annual precipitation: 50 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

MacDunn and similar soils: 44 percent
Price and similar soils: 28 percent
Ritner and similar soils: 20 percent
Dissimilar minor components: 8 percent

Characteristics of MacDunn

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes
Downslope shape: Linear
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 60 to 90 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly silty clay loam
AB—7 to 15 inches; gravelly silty clay loam
Bw1—15 to 24 inches; very cobbly silty clay
Bw2—24 to 38 inches; very cobbly silty clay
Bw3—38 to 51 inches; extremely cobbly silty clay
2Cr—51 to 61 inches; weathered bedrock

Characteristics of Price

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes
Downslope shape: Linear
Across-slope shape: Concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 60 to 90 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; silty clay loam
BA—8 to 17 inches; silty clay
Bw1—17 to 31 inches; silty clay
Bw2—31 to 54 inches; silty clay
BC—54 to 86 inches; gravelly silty clay loam
2R—86 to 90 inches; unweathered bedrock

Characteristics of Ritner

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; gravelly silty clay loam
BA—6 to 16 inches; gravelly silty clay loam
Bw1—16 to 25 inches; very cobbly silty clay
Bw2—25 to 39 inches; very cobbly silty clay
2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Nekia soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Dixonville soils
Percentage of map unit: 1 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Witzel soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Forestland, wildlife habitat, recreation

Major Management Limitations

MacDunn, Price, and Ritner—content of clay, slope
MacDunn and Ritner—content of rock fragments, depth to bedrock

110—Malabon silty clay loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 2
Elevation: 150 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Malabon and similar soils: 89 percent
Dissimilar minor components: 11 percent

Characteristics of Malabon

Setting
Landform: Terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 1
Land capability subclass (irrigated): 1

Typical profile
Ap—0 to 7 inches; silty clay loam
AB—7 to 12 inches; silty clay loam
Bt1—12 to 19 inches; silty clay
Bt2—19 to 29 inches; silty clay
BCt—29 to 42 inches; silty clay loam
2C—42 to 60 inches; clay loam

Dissimilar Minor Components

Coburg soils
Percentage of map unit: 5 percent
Landform: Concave areas of terraces

Salem soils
Percentage of map unit: 3 percent
Landform: Convex areas of terraces

Conser soils
Percentage of map unit: 2 percent
Landform: Concave areas of terraces

Clackamas soils
Percentage of map unit: 1 percent
Landform: Linear areas of terraces

Major Uses

Cropland, urban development

Major Management Limitations

None

111—Malabon silty clay loam, rarely flooded, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 2
Elevation: 180 to 500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Malabon, rarely flooded, and similar soils: 89 percent
Dissimilar minor components: 11 percent

Characteristics of Malabon, Rarely Flooded

Setting
Landform: Flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey and loamy alluvium
Slope range: 0 to 3 percent

Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 6 inches; silty clay loam
AB—6 to 12 inches; silty clay loam
BAt—12 to 18 inches; silty clay
Bt1—18 to 34 inches; silty clay
Bt2—34 to 47 inches; silty clay loam
BCt—47 to 58 inches; silty clay loam
2C—58 to 63 inches; fine sandy loam

Dissimilar Minor Components

McBee soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Chehalis soils
Percentage of map unit: 2 percent
Landform: Linear areas of flood plains

Riverwash
Percentage of map unit: 1 percent
Landform: Flood plains consisting of unstabilized channel sediment

Major Use

Cropland

Major Management Limitations

Flooding, content of clay

112—Maryspeak gravelly medial sandy loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches

Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Maryspeak and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Maryspeak

Setting
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes
Downslope shape: Linear, convex, concave
Across-slope shape: Concave, linear
Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Sandy colluvium derived from sandstone or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 2 inches; moderately decomposed plant material
A1—2 to 4 inches; gravelly medial sandy loam
A2—4 to 9 inches; gravelly medial sandy loam
BA—9 to 13 inches; very gravelly sandy loam
Bw—13 to 34 inches; very gravelly loamy fine sand
BC—34 to 59 inches; very gravelly loamy fine sand
C—59 to 73 inches; very gravelly sandy loam

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Luckiamute soils
Percentage of map unit: 3 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Mulkey soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Major Uses

Forestland, recreation, wildlife habitat

Major Management Limitation

Slope

113—McAlpin silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

McAlpin and similar soils: 82 percent
Dissimilar minor components: 18 percent

Characteristics of McAlpin

Setting
Landform: Concave and linear areas of alluvial fans
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 23 to 37 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap1—0 to 5 inches; silty clay loam
Ap2—5 to 8 inches; silty clay loam
AB—8 to 14 inches; silty clay loam
BA—14 to 23 inches; silty clay loam
Bw1—23 to 37 inches; silty clay
Bw2—37 to 51 inches; silty clay
BC—51 to 65 inches; silty clay

Dissimilar Minor Components

Abiqua soils
Percentage of map unit: 7 percent
Landform: Convex and linear areas of alluvial fans

Chehalem soils
Percentage of map unit: 5 percent
Landform: Linear areas of alluvial fans

McAlpin soils, rarely flooded
Percentage of map unit: 3 percent
Landform: Concave and linear areas of flood plains

Cove soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 1 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

114—McAlpin silty clay loam, 3 to 6 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

McAlpin and similar soils: 84 percent
Dissimilar minor components: 16 percent

Characteristics of McAlpin

Setting
Landform: Concave and linear areas of alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 3 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 23 to 37 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap1—0 to 5 inches; silty clay loam
Ap2—5 to 8 inches; silty clay loam
AB—8 to 14 inches; silty clay loam
BA—14 to 23 inches; silty clay loam
Bw1—23 to 37 inches; silty clay
Bw2—37 to 51 inches; silty clay
BC—51 to 65 inches; silty clay

Dissimilar Minor Components

Abiqua soils
Percentage of map unit: 7 percent
Landform: Convex and linear areas of alluvial fans

Chehalem soils
Percentage of map unit: 5 percent
Landform: Linear areas of alluvial fans

Cove soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

McAlpin soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Concave and linear areas of flood plains

McAlpin soils, cobbly surface
Percentage of map unit: 1 percent
Landform: Convex areas of alluvial fans

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

115—McAlpin silty clay loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2

Elevation: 250 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

McAlpin, high precipitation, and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of McAlpin, High Precipitation

Setting
Landform: Linear to slightly concave areas of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear, concave
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from igneous and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 23 to 37 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap1—0 to 5 inches; silty clay loam
Ap2—5 to 8 inches; silty clay loam
AB—8 to 14 inches; silty clay loam
BA—14 to 23 inches; silty clay loam
Bw1—23 to 37 inches; silty clay
Bw2—37 to 51 inches; silty clay
BC—51 to 65 inches; silty clay

Dissimilar Minor Components

Abiqua soils, high precipitation
Percentage of map unit: 5 percent
Landform: Gently sloping, convex areas of stream terraces

Alsea soils
Percentage of map unit: 4 percent
Landform: Nearly level to gently sloping areas of stream terraces

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, homesites, forestland, wildlife habitat

Major Management Limitations

Content of clay, shrink-swell potential, depth to saturated zone, restricted permeability, low soil strength

116—McAlpin silty clay loam, high precipitation, 3 to 6 percent slopes

Map Unit Setting

Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

McAlpin, high precipitation, and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of McAlpin, High Precipitation

Setting
Landform: Alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Concave, linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from igneous and sedimentary rock
Slope range: 3 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 23 to 37 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap1—0 to 5 inches; silty clay loam
Ap2—5 to 8 inches; silty clay loam
AB—8 to 14 inches; silty clay loam
BA—14 to 23 inches; silty clay loam
Bw1—23 to 37 inches; silty clay
Bw2—37 to 51 inches; silty clay
BC—51 to 65 inches; silty clay

Dissimilar Minor Components

Abiqua soils, high precipitation
Percentage of map unit: 6 percent
Landform: Gently sloping, convex areas of stream terraces

Alsea soils
Percentage of map unit: 3 percent
Landform: Nearly level to gently sloping areas of stream terraces

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, homesites, forestland, wildlife habitat

Major Management Limitations

Content of clay, shrink-swell potential, depth to saturated zone, restricted permeability, low soil strength

117—McAlpin silty clay loam, rarely flooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

McAlpin, rarely flooded, and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of McAlpin, Rarely Flooded

Setting
Landform: Concave and linear areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 22 to 31 inches (see Water Features table)
Salinity (maximum): Not saline

Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap1—0 to 5 inches; silty clay loam
Ap2—5 to 14 inches; silty clay loam
BA—14 to 22 inches; silty clay
Bw1—22 to 31 inches; silty clay
Bw2—31 to 54 inches; clay
BC—54 to 60 inches; silty clay

Dissimilar Minor Components

Abiqua soils, rarely flooded
Percentage of map unit: 5 percent
Landform: Convex and linear areas of flood plains

McBee soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Riverwash
Percentage of map unit: 1 percent
Landform: Flood plains consisting of unstabilized channel sediment

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, content of clay, shrink-swell potential

118—McBee silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 50 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

McBee and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of McBee

Setting
Landform: Concave areas of flood plains

Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 10 to 22 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; silty clay loam
A—7 to 10 inches; silty clay loam
BA—10 to 22 inches; silty clay loam
Bw—22 to 35 inches; silty clay loam
BCg—35 to 42 inches; clay loam
Cg—42 to 65 inches; clay loam

Dissimilar Minor Components

Wapato soils
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Newberg soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of flood plains

Major Use

Cropland

Major Management Limitations

Flooding, depth to saturated zone

119—McBee silty clay loam, nonflooded, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

McBee, nonflooded, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of McBee, Nonflooded

Setting
Landform: Concave areas of flood plains
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty and loamy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 6 to 12 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 6 inches; silty clay loam
A—6 to 12 inches; silty clay loam
Bw1—12 to 25 inches; silty clay loam
Bw2—25 to 40 inches; silty clay loam
Cg—40 to 60 inches; silty clay loam

Dissimilar Minor Components

Cove soils
Percentage of map unit: 10 percent
Landform: Concave areas of flood plains

Chehalem soils
Percentage of map unit: 5 percent
Landform: Linear areas of terraces

Major Use

Cropland

Major Management Limitation

Depth to saturated zone

120—Meda-Treharne-Wasson complex, 0 to 20 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1

Elevation: 400 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Meda and similar soils: 40 percent
Treharne and similar soils: 25 percent
Wasson and similar soils: 15 percent
Dissimilar minor components: 20 percent

Characteristics of Meda

Setting
Landform: Gently sloping to strongly sloping areas of alluvial fans
Geomorphic position (three-dimensional): Risers
Downslope shape: Concave
Across-slope shape: Linear
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy alluvium and colluvium derived from sedimentary and volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 13 inches; gravelly loam
AB—13 to 18 inches; gravelly loam
Bw1—18 to 30 inches; gravelly clay loam
Bw2—30 to 34 inches; gravelly clay loam
2C—34 to 66 inches; gravelly sandy loam

Characteristics of Treharne

Setting
Landform: Linear to slightly concave areas of stream terraces

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): About 21 to 32 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Land capability subclass (irrigated): 2c

Typical profile
Ap—0 to 6 inches; silt loam
A—6 to 14 inches; silt loam
Bt1—14 to 21 inches; silty clay loam
Bt2—21 to 32 inches; silty clay loam
C—32 to 68 inches; silty clay loam

Characteristics of Wasson

Setting
Landform: Depressions of flood plains

Properties and qualities
Parent material: Stratified loamy recent alluvium derived from sandstone and siltstone
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 2 to 11 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 11 inches; loam
AC—11 to 15 inches; very fine sandy loam
Cg1—15 to 33 inches; stratified loamy fine sand to very fine sandy loam
Cg2—33 to 66 inches; stratified fine sandy loam to loamy fine sand

Dissimilar Minor Components

Bohannon soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes

Preacher soils
Percentage of map unit: 4 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Slickrock soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of mountain slopes

Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Eilertsen soils
Percentage of map unit: 3 percent
Landform: Nearly level to gently sloping, slightly convex areas of stream terraces

Nekoma soils
Percentage of map unit: 3 percent
Landform: Linear to slightly convex areas of flood plains
Geomorphic position (three-dimensional): Treads

Fluvaquents
Percentage of map unit: 2 percent
Landform: Depressions of flood plains

Major Uses

Meda and Treharne—forestland, cropland, homesites, recreation, wildlife habitat
Wasson—native pasture, recreation, wildlife habitat

Major Management Limitations

Meda—slope
Treharne—depth to saturated zone, restricted permeability, low soil strength
Wasson—flooding, depth to saturated zone, low soil strength

121—Mulkey medial loam, 3 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Mulkey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Mulkey

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): Southwest
Aspect (range): East to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or other coarse-grained intrusive igneous rock
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline

Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 10 inches; medial loam
A2—10 to 19 inches; gravelly medial loam
Bw—19 to 26 inches; cobbly medial loam
R—26 to 30 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Newanna soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Valsetz soils
Percentage of map unit: 3 percent
Landform: Mountains

Yellowstone soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Luckiamute soils
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Maryspeak soils
Percentage of map unit: 1 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Sevencedars soils
Percentage of map unit: 1 percent
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks

Woodspoint soils
Percentage of map unit: 1 percent
Landform: Concave areas of mountain slopes

Major Uses

Recreation, wildlife habitat

Major Management Limitations

Slope, depth to bedrock, seepage

122—Mulkey medial loam, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Mulkey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Mulkey

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or other coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 10 inches; medial loam
A2—10 to 19 inches; gravelly medial loam
Bw—19 to 26 inches; cobbly medial loam
R—26 to 30 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Newanna soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Valsetz soils
Percentage of map unit: 2 percent
Landform: Mountains

Yellowstone soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Luckiamute soils
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Maryspeak soils
Percentage of map unit: 1 percent
Landform: Concave areas of landslides
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Crests and shoulders of mountain slopes

Sevencedars soils
Percentage of map unit: 1 percent
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks

Woodspoint soils
Percentage of map unit: 1 percent
Landform: Concave areas of mountain slopes

Major Uses

Recreation, wildlife habitat

Major Management Limitations

Slope, depth to bedrock, seepage

123—Murtip-Giveout-Laderly complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Murtip and similar soils: 45 percent
Giveout and similar soils: 25 percent
Laderly and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Murtip

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, mountaintops, mountain bases
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 21.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 19 inches; medial loam
Bw1—19 to 31 inches; medial loam
Bw2—31 to 45 inches; medial loam
BC—45 to 56 inches; gravelly medial loam
Cr—56 to 66 inches; weathered bedrock

Characteristics of Giveout

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 16 inches; gravelly medial loam
Bw1—16 to 28 inches; gravelly medial loam
Bw2—28 to 36 inches; gravelly medial loam
Cr—36 to 46 inches; weathered bedrock

Characteristics of Laderly

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders, backslopes
Geomorphic position (three-dimensional): Mountaintops, center third of mountain flanks, upper third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; very gravelly medial loam
Bw1—15 to 29 inches; very cobbly medial loam
Bw2—29 to 37 inches; extremely cobbly medial loam
R—37 to 41 inches; unweathered bedrock

Dissimilar Minor Components

Caterl soils
Percentage of map unit: 10 percent
Landform: Linear and concave areas of mountain slope

Major Uses

Murtip, Giveout, and Laderly—forestland, recreation, wildlife habitat

Major Management Limitations

Murtip, Giveout, and Laderly—slopes
Giveout and Laderly—depth to bedrock

124—Nekoma-Fluvaquents complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 200 to 750 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Nekoma and similar soils: 50 percent
Fluvaquents and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Nekoma

Setting
Landform: Linear to slightly convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave
Across-slope shape: Linear

Properties and qualities
Parent material: Recent loamy alluvium derived from sandstone and siltstone
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 48 to 72 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 5 inches; silt loam
A—5 to 14 inches; silt loam
Bw—14 to 26 inches; fine sandy loam
C1—26 to 48 inches; stratified fine sandy loam to loamy fine sand
C2—48 to 60 inches; stratified loamy fine sand to fine sandy loam

Characteristics of Fluvaquents

Setting
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Recent loamy alluvium over stratified very gravelly loamy to sandy alluvium derived from sandstone and siltstone
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 7 to 28 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7w

Typical profile
A—0 to 7 inches; silt loam
C1—7 to 28 inches; stratified silt loam to very gravelly sandy loam
2C2—28 to 44 inches; stratified loamy sand to very gravelly fine sandy loam
2C3—44 to 66 inches; stratified silt loam to very gravelly sandy loam

Dissimilar Minor Components

Kirkendall soils
Percentage of map unit: 5 percent
Landform: Bars, convex areas of flood plains

Eilertsen soils
Percentage of map unit: 4 percent
Landform: Nearly level to gently sloping, slightly convex areas of stream terraces

Meda soils
Percentage of map unit: 3 percent
Landform: Gently sloping areas of alluvial fans

Quosatana soils
Percentage of map unit: 3 percent
Landform: Depressions of flood plains

Treharne soils
Percentage of map unit: 3 percent
Landform: Linear to slightly concave areas of stream terraces

Wasson soils
Percentage of map unit: 2 percent
Landform: Depressions of flood plains

Major Uses

Nekoma—cropland, recreation, wildlife habitat

Fluvaquents—native pasture, recreation, wildlife habitat

Major Management Limitations

Nekoma—flooding, low soil strength
Fluvaquents—flooding, depth to saturated zone

125—Newberg fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 30 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Newberg and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Newberg

Setting
Landform: Convex areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Loamy and stratified sandy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; fine sandy loam
AC—7 to 19 inches; fine sandy loam
C1—19 to 28 inches; coarse sandy loam
C2—28 to 48 inches; stratified loamy fine sand to fine sandy loam
C3—48 to 64 inches; stratified fine sand to fine sandy loam

Dissimilar Minor Components

Camas soils
Percentage of map unit: 3 percent
Landform: Convex areas of flood plains

Chehalis soils
Percentage of map unit: 2 percent
Landform: Linear areas of flood plains

McBee soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Wapato soils
Percentage of map unit: 1 percent
Landform: Concave areas of flood plains

Major Uses

Cropland, wildlife habitat

Major Management Limitation

Flooding

126—Newberg fine sandy loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 200 to 300 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Newberg, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Newberg, High Precipitation

Setting
Landform: Linear to slightly convex flood plains

Properties and qualities
Parent material: Loamy and stratified sandy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 7 inches; fine sandy loam
AC—7 to 19 inches; fine sandy loam
C1—19 to 28 inches; coarse sandy loam
C2—28 to 48 inches; stratified loamy fine sand to fine sandy loam
C3—48 to 64 inches; stratified fine sand to fine sandy loam

Dissimilar Minor Components

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Fluvaquents, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Fluvents, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Waldo soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads

Wapato soils, high precipitation
Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Major Uses

Cropland, forestland, wildlife habitat

Major Management Limitation

Flooding

127—Newberg loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 30 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Newberg and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Newberg

Setting
Landform: Convex areas of flood plains
Geomorphic position (three-dimensional): Treads

Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Loamy and stratified sandy alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 8 inches; loam
AC—8 to 18 inches; fine sandy loam
C1—18 to 30 inches; fine sandy loam
C2—30 to 46 inches; stratified fine sand to fine sandy loam
C3—46 to 60 inches; stratified fine sand to fine sandy loam

Dissimilar Minor Components

Camas soils
Percentage of map unit: 3 percent
Landform: Convex areas of flood plains

Chehalis soils
Percentage of map unit: 2 percent
Landform: Linear areas of flood plains

McBee soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains

Wapato soils
Percentage of map unit: 1 percent
Landform: Concave areas of flood plains

Major Uses

Cropland, wildlife habitat

Major Management Limitation

Flooding

128—Oldblue-Burntwoods complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1

Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Map Unit Composition

Oldblue and similar soils: 55 percent
Burntwoods and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Oldblue

Setting
Landform: Concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks, mountaintops
Downslope shape: Convex, concave, linear
Across-slope shape: Convex, concave
Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Recent loamy colluvium over older loamy colluvium derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 60 to 89 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 18.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 6 inches; gravelly medial loam
A2—6 to 12 inches; very paragravelly medial loam
A3—12 to 21 inches; paragravelly medial loam
2Bw1—21 to 38 inches; extremely paragravelly clay loam
2Bw2—38 to 75 inches; extremely paracobbly clay loam
2Cr—75 to 85 inches; weathered bedrock

Characteristics of Burntwoods

Setting
Landform: Linear areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks, center third of mountain flanks
Downslope shape: Linear, concave
Across-slope shape: Convex, linear

Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Recent loamy colluvium over older loamy colluvium derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 61 to 89 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 3 inches; moderately decomposed plant material
A1—3 to 12 inches; extremely gravelly medial loam
A2—12 to 19 inches; very gravelly medial loam
2BA—19 to 27 inches; very gravelly loam
2Bw1—27 to 41 inches; very gravelly loam
2Bw2—41 to 53 inches; extremely gravelly loam
2Bw3—53 to 67 inches; extremely gravelly loam

Dissimilar Minor Components

Chintimini soils
Percentage of map unit: 5 percent
Landform: Linear and convex areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes

Grassmountain soils
Percentage of map unit: 5 percent
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, mountaintops, lower third of mountain flanks

Major Uses

Oldblue and Burntwoods—forestland, recreation, wildlife habitat

Major Management Limitation

Oldblue and Burntwoods—slope

129—Panther silty clay loam, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2

Elevation: 300 to 1,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Panther and similar soils: 81 percent
Dissimilar minor components: 19 percent

Characteristics of Panther

Setting
Landform: Concave and linear areas of slumps

Properties and qualities
Parent material: Clayey colluvium over clayey residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): At the surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Land capability subclass (irrigated): 4w

Typical profile
Ap—0 to 8 inches; silty clay loam
A—8 to 14 inches; silty clay loam
2Bssg1—14 to 24 inches; clay
2Bssg2—24 to 36 inches; clay
2Cg—36 to 44 inches; extremely paragravelly clay
2Cr—44 to 54 inches; weathered bedrock

Dissimilar Minor Components

Bashaw soils, nonflooded
Percentage of map unit: 5 percent
Landform: Concave areas of hillslopes

Hazelair soils
Percentage of map unit: 5 percent
Landform: Convex areas of hillslopes

Witham soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of alluvial fans

Dixonville soils
Percentage of map unit: 3 percent
Landform: Convex areas of hillslopes

Philomath soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, depth to bedrock

130—Pengra silt loam, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Pengra and similar soils: 83 percent
Dissimilar minor components: 17 percent

Characteristics of Pengra

Setting
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Toeslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Linear
Across-slope shape: Concave, linear

Properties and qualities
Parent material: Silty and clayey alluvium
Slope range: 2 to 12 percent
Depth to restrictive feature: 14 to 30 inches to abrupt textural change
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 6 to 13 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 6 inches; silt loam
BA—6 to 13 inches; silty clay loam
Bw—13 to 21 inches; silty clay loam

2C1—21 to 36 inches; clay
2C2—36 to 60 inches; clay

Dissimilar Minor Components

Natroy soils
Percentage of map unit: 10 percent
Landform: Concave areas of terraces

Hazelair soils
Percentage of map unit: 3 percent
Landform: Convex areas of hillslopes

Bellpine soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Willakenzie soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

131—Philomath silty clay loam, 3 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 300 to 1,200 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Philomath and similar soils: 76 percent
Dissimilar minor components: 24 percent

Characteristics of Philomath

Setting
Landform: Convex areas of hillslopes

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 3 to 12 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Available water capacity (entire profile): Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 6e

Typical profile
A1—0 to 4 inches; silty clay loam
A2—4 to 8 inches; silty clay
A3—8 to 15 inches; silty clay
2Cr—15 to 25 inches; weathered bedrock

Dissimilar Minor Components

Dixonville soils
Percentage of map unit: 10 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 5 percent
Landform: Concave areas of hillslopes

Witham soils
Percentage of map unit: 4 percent
Landform: Concave areas of alluvial fans

Hazelair soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of hillslopes

Bashaw soils, nonflooded
Percentage of map unit: 1 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Ritner soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, wildlife habitat, recreation, homesite development

Major Management Limitations

Content of clay, shrink-swell potential, depth to bedrock

132—Pilchuck fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 120 to 300 feet
Mean annual precipitation: 40 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Pilchuck and similar soils: 79 percent
Dissimilar minor components: 21 percent

Characteristics of Pilchuck

Setting
Landform: Convex areas of flood plains
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Sandy and gravelly alluvium derived from igneous rock
Slope range: 0 to 3 percent
Depth to restrictive feature: 5 to 10 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Land capability subclass (irrigated): 4w

Typical profile
Ap—0 to 7 inches; fine sandy loam
C1—7 to 45 inches; stratified sand to loamy fine sand
C2—45 to 62 inches; stratified sand to very cobbly loamy fine sand

Dissimilar Minor Components

Camas soils
Percentage of map unit: 10 percent
Landform: Convex areas of flood plains

Fluvaquents
Percentage of map unit: 5 percent
Landform: Concave areas of flood plains

Riverwash
Percentage of map unit: 4 percent
Landform: Flood plains consisting of unstabilized channel sediment

Cloquato soils
Percentage of map unit: 2 percent
Landform: Linear areas of flood plains

Major Uses

Cropland, wildlife habitat, recreation

Major Management Limitations

Content of sand, flooding

133—Pits

Major land resource area (MLRA): 2
Composition of map unit: Pits—100 percent
Depth to restrictive feature: None within 60 inches

Capacity of the most limiting soil layer to transmit water (Ksat): Unspecified
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

134—Preacher-Blachly-Bohannon complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 1,300 to 1,800 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Preacher and similar soils: 40 percent
Blachly and similar soils: 30 percent
Bohannon and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Preacher

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, footslopes
Geomorphic position (three-dimensional): Mountaintops, lower third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Linear, convex
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 12 inches; medial loam
A2—12 to 18 inches; loam

Bw1—18 to 29 inches; clay loam
Bw2—29 to 44 inches; clay loam
C—44 to 53 inches; loam
Cr—53 to 63 inches; weathered bedrock

Characteristics of Blachly

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Mountaintops, mountain bases
Downslope shape: Concave
Across-slope shape: Concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; loam
BA—7 to 16 inches; clay loam
2Bw1—16 to 27 inches; paragravelly silty clay loam
2Bw2—27 to 54 inches; paragravelly silty clay
2Bw3—54 to 65 inches; silty clay
2BC—65 to 96 inches; silty clay loam

Characteristics of Bohannon

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None

Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 10 inches; gravelly medial loam
AB—10 to 19 inches; gravelly loam
Bw1—19 to 27 inches; gravelly loam
Bw2—27 to 34 inches; gravelly loam
Cr—34 to 44 inches; weathered bedrock

Dissimilar Minor Components

Kilowan soils
Percentage of map unit: 6 percent
Landform: Convex and linear areas of mountain slopes

Digger soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes

Remote soils
Percentage of map unit: 2 percent
Landform: Linear areas of mountain slopes

Major Uses

Preacher, Blachly, and Bohannon—forestland, recreation, wildlife habitat

Major Management Limitations

Preacher, Blachly, and Bohannon—slope
Preacher and Blachly—low soil strength
Blachly—content of clay
Bohannon—depth to bedrock

135—Preacher-Bohannon complex, 5 to 35 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Preacher and similar soils: 50 percent
Bohannon and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Preacher

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 35 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 12 inches; medial loam
A2—12 to 18 inches; loam
Bw1—18 to 29 inches; clay loam
Bw2—29 to 44 inches; clay loam
C—44 to 53 inches; loam
Cr—53 to 63 inches; weathered bedrock

Characteristics of Bohannon

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, shoulders
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks, mountaintops
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 5 to 35 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 10 inches; gravelly medial loam
AB—10 to 19 inches; gravelly loam
Bw1—19 to 27 inches; gravelly loam
Bw2—27 to 34 inches; gravelly loam
Cr—34 to 44 inches; weathered bedrock

Dissimilar Minor Components

Slickrock soils
Percentage of map unit: 10 percent
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits

Digger soils
Percentage of map unit: 5 percent
Landform: Convex areas of mountain slopes

Remote soils
Percentage of map unit: 5 percent
Landform: Linear areas of mountain slopes

Major Uses

Forestland, limited homesite development, recreation, wildlife habitat

Major Management Limitations

Preacher and Bohannon—slope
Preacher—low soil strength
Bohannon—depth to bedrock

136—Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Preacher and similar soils: 35 percent
Bohannon and similar soils: 30 percent
Slickrock and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Preacher

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes

Geomorphic position (three-dimensional): Lower third of mountain flanks
Downslope shape: Linear, concave
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 35 to 60 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 12 inches; medial loam
A2—12 to 18 inches; loam
Bw1—18 to 29 inches; clay loam
Bw2—29 to 44 inches; clay loam
C—44 to 53 inches; loam
Cr—53 to 63 inches; weathered bedrock

Characteristics of Bohannon

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 35 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 10 inches; gravelly medial loam
AB—10 to 19 inches; gravelly loam
Bw1—19 to 27 inches; gravelly loam
Bw2—27 to 34 inches; gravelly loam
Cr—34 to 44 inches; weathered bedrock

Characteristics of Slickrock

Setting
Landform: Concave areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (range): All aspects

Properties and qualities
Parent material: Recent loamy colluvium over older loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 35 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 11 inches; gravelly medial loam
A2—11 to 23 inches; gravelly medial loam
Bw1—23 to 36 inches; gravelly clay loam
Bw2—36 to 48 inches; gravelly clay loam
BC—48 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Blachly soils
Percentage of map unit: 5 percent
Landform: Concave areas of mountain slopes

Digger soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes

Kilowan soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Remote soils
Percentage of map unit: 3 percent
Landform: Linear areas of mountain slopes

Major Uses

Preacher, Bohannon, and Slickrock—forestland, recreation, wildlife habitat

Major Management Limitations

Preacher, Bohannon, and Slickrock—slope
Preacher—low soil strength
Bohannon—depth to bedrock

137—Price-MacDunn-Ritner complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 2
Elevation: 240 to 2,200 feet
Mean annual precipitation: 50 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Price and similar soils: 40 percent
MacDunn and similar soils: 30 percent
Ritner and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Price

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Linear
Across-slope shape: Linear, concave
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; silty clay loam
BA—8 to 17 inches; silty clay

Bw1—17 to 31 inches; silty clay
Bw2—31 to 54 inches; silty clay
BC—54 to 86 inches; gravelly silty clay loam
2R—86 to 90 inches; unweathered bedrock

Characteristics of MacDunn

Setting
Landform: Mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Linear
Across-slope shape: Concave, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly silty clay loam
AB—7 to 15 inches; gravelly silty clay loam
Bw1—15 to 24 inches; very cobbly silty clay
Bw2—24 to 38 inches; very cobbly silty clay
Bw3—38 to 51 inches; extremely cobbly silty clay
2Cr—51 to 61 inches; weathered bedrock

Characteristics of Ritner

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Side slopes, nose slopes
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (range): All aspects

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; gravelly silty clay loam
BA—6 to 16 inches; gravelly silty clay loam
Bw1—16 to 25 inches; very cobbly silty clay
Bw2—25 to 39 inches; very cobbly silty clay
2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Nekia soils
Percentage of map unit: 6 percent
Landform: Convex areas of hillslopes

Dixonville soils
Percentage of map unit: 1 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Witham soils
Percentage of map unit: 1 percent
Landform: Concave areas of alluvial fans

Witzel soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Forestland, wildlife habitat, recreation

Major Management Limitations

Price, MacDunn, and Ritner—content of clay, slope
MacDunn and Ritner—content of rock fragments, content of clay, slope, depth to bedrock

138—Riverwash

General landscape: Valleys
Major land resource area (MLRA): 2
Landform: Flood plains consisting of unstabilized channel sediment
Map unit composition: Riverwash—100 percent

Properties and qualities
Slope range: 0 to 4 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Unspecified

Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): At the surface to a depth of 24 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Interpretive groups
Land capability subclass (nonirrigated): 8

Typical profile
C—0 to 60 inches; stratified sand to gravel

139—Salem gravelly silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 100 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Salem and similar soils: 91 percent
Dissimilar minor components: 9 percent

Characteristics of Salem

Setting
Landform: Convex areas of terraces

Properties and qualities
Parent material: Loamy alluvium over stratified sandy and gravelly alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2s
Land capability subclass (irrigated): 2s

Typical profile
Ap—0 to 9 inches; gravelly silt loam
Bt—9 to 18 inches; gravelly silty clay loam
BCt—18 to 30 inches; very gravelly clay loam
2C—30 to 60 inches; stratified extremely gravelly sand to very gravelly loamy sand

Dissimilar Minor Components

Clackamas soils
Percentage of map unit: 5 percent
Landform: Concave areas of terraces

Conser soils
Percentage of map unit: 2 percent
Landform: Concave areas of terraces

Malabon soils
Percentage of map unit: 2 percent
Landform: Terraces

Major Use

Cropland

Major Management Limitations

Content of sand, rock fragments

140—Santiam silt loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Santiam and similar soils: 91 percent
Dissimilar minor components: 9 percent

Characteristics of Santiam

Setting
Landform: Terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty glaciolacustrine deposits over clayey alluvium
Slope range: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 22 to 30 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap—0 to 6 inches; silt loam
AB—6 to 13 inches; silt loam
Bt1—13 to 22 inches; silty clay loam
Bt2—22 to 30 inches; silty clay loam
2C—30 to 60 inches; silty clay

Dissimilar Minor Components

Linslaw soils
Percentage of map unit: 3 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Bellpine soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Jory soils, sedimentary bedrock
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Noti soils
Percentage of map unit: 2 percent
Landform: Narrow drainageways of terraces

Major Uses

Cropland (fig. 14), homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

141—Santiam silt loam, 8 to 20 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Santiam and similar soils: 93 percent
Dissimilar minor components: 7 percent

Characteristics of Santiam

Setting
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Figure 14.—Christmas tree plantation in an area of Santiam silt loam, 2 to 8 percent slopes.

Downslope shape: Convex
Across-slope shape: Linear
Aspect (representative): East
Aspect (range): North to south (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits over clayey alluvium
Slope range: 8 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 22 to 30 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 6 inches; silt loam
AB—6 to 13 inches; silt loam
Bt1—13 to 22 inches; silty clay loam

Bt2—22 to 30 inches; silty clay loam
2C—30 to 60 inches; silty clay

Dissimilar Minor Components

Bellpine soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Jory soils, sedimentary bedrock
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Linslaw soils
Percentage of map unit: 2 percent
Landform: Concave areas of terraces
Geomorphic position (three-dimensional): Treads

Noti soils
Percentage of map unit: 1 percent
Landform: Narrow drainageways on terraces

Major Uses

Cropland, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, slope

142—Sevencedars-Newanna complex, 60 to 90 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Sevencedars and similar soils: 55 percent
Newanna and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Sevencedars

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks
Downslope shape: Linear, convex, concave
Across-slope shape: Concave
Aspect (representative): Northwest
Aspect (range): Southwest to northeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 16.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 8 inches; gravelly medial loam
A2—8 to 17 inches; very gravelly medial loam
Bw1—17 to 30 inches; very gravelly medial loam
Bw2—30 to 48 inches; very gravelly medial loam
Bw3—48 to 65 inches; very gravelly medial loam

Characteristics of Newanna

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex, linear
Aspect (representative): Northwest
Aspect (range): Southwest to northeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt and coarse-grained intrusive igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 13 inches; very cobbly medial loam

Bw1—13 to 22 inches; very cobbly medial loam
Bw2—22 to 33 inches; extremely cobbly medial loam
R—33 to 37 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 6 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Luckiamute soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Woodspoint soils
Percentage of map unit: 3 percent
Landform: Concave areas of mountain slopes

Rock outcrop
Percentage of map unit: 2 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Sevencedars and Newanna—forestland, recreation, wildlife habitat

Major Management Limitations

Sevencedars and Newanna—slope
Newanna—depth to bedrock, content of large stones on surface

143—Sevencedars-Newanna-Woodspoint complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Sevencedars and similar soils: 35 percent
Newanna and similar soils: 30 percent
Woodspoint and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Sevencedars

Setting
Landform: Linear and concave areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks
Downslope shape: Concave, convex, linear

Across-slope shape: Concave
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 16.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 8 inches; gravelly medial loam
A2—8 to 17 inches; very gravelly medial loam
Bw1—17 to 30 inches; very gravelly medial loam
Bw2—30 to 48 inches; very gravelly medial loam
Bw3—48 to 65 inches; very gravelly medial loam

Characteristics of Newanna

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Summits, shoulders
Geomorphic position (three-dimensional): Upper third of mountain flanks, mountaintops
Downslope shape: Convex
Across-slope shape: Convex
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 13 inches; very cobbly medial loam
Bw1—13 to 22 inches; very cobbly medial loam
Bw2—22 to 33 inches; extremely cobbly medial loam
R—33 to 37 inches; unweathered bedrock

Characteristics of Woodspoint

Setting
Landform: Concave areas of mountain slopes
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 5 inches; medial loam
A2—5 to 16 inches; gravelly medial loam
Bw1—16 to 27 inches; gravelly medial loam
Bw2—27 to 46 inches; gravelly medial loam
R—46 to 50 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Luckiamute soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Maryspeak soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Mulkey soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Sevencedars, Newanna, and Woodspoint—forestland, recreation, wildlife habitat

Major Management Limitations

Sevencedars, Newanna, and Woodspoint—slope
Newanna—depth to bedrock, content of large stones on surface

144—Sevencedars-Newanna-Woodspoint complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Sevencedars and similar soils: 50 percent
Newanna and similar soils: 20 percent
Woodspoint and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Sevencedars

Setting
Landform: Linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes, footslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks
Downslope shape: Concave, convex, linear
Across-slope shape: Concave
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 16.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 8 inches; gravelly medial loam
A2—8 to 17 inches; very gravelly medial loam
Bw1—17 to 30 inches; very gravelly medial loam
Bw2—30 to 48 inches; very gravelly medial loam
Bw3—48 to 65 inches; very gravelly medial loam

Characteristics of Newanna

Setting
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Upper third of mountain flanks, center third of mountain flanks
Downslope shape: Convex, linear, concave
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt and coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 13 inches; very cobbly medial loam
Bw1—13 to 22 inches; very cobbly medial loam
Bw2—22 to 33 inches; extremely cobbly medial loam
R—33 to 37 inches; unweathered bedrock

Characteristics of Woodspoint

Setting
Landform: Concave areas of mountain slopes
Aspect (representative): North
Aspect (range): Southwest to east (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 5 inches; medial loam
A2—5 to 16 inches; gravelly medial loam
Bw1—16 to 27 inches; gravelly medial loam
Bw2—27 to 46 inches; gravelly medial loam
R—46 to 50 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Mulkey soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Rock outcrop
Percentage of map unit: 2 percent
Landform: Crests and shoulders of mountain slopes

Luckiamute soils
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Maryspeak soils
Percentage of map unit: 1 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Major Uses

Sevencedars, Newanna, and Woodspoint—forestland, recreation, wildlife habitat

Major Management Limitations

Sevencedars, Newanna, and Woodspoint—slope
Newanna—depth to bedrock, content of large stones on surface

145—Shivigny-Honeygrove complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1

Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Shivigny and similar soils: 45 percent
Honeygrove, basalt bedrock, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Shivigny

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, upper third of mountain flanks
Downslope shape: Convex, linear
Across-slope shape: Convex
Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 60 to 80 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; very gravelly clay loam
BA—7 to 13 inches; very gravelly clay loam
Bt1—13 to 23 inches; extremely gravelly silty clay
Bt2—23 to 34 inches; extremely gravelly silty clay
Bt3—34 to 43 inches; extremely cobbly silty clay
BCt—43 to 68 inches; extremely cobbly silty clay
Crt—68 to 78 inches; weathered bedrock

Characteristics of Honeygrove, Basalt Bedrock

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Footslopes, toeslopes
Geomorphic position (three-dimensional): Mountain bases, lower third of mountain flanks
Downslope shape: Concave, linear
Across-slope shape: Concave, linear

Aspect (representative): Northeast
Aspect (range): West to south (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; silty clay loam
BAt—9 to 15 inches; silty clay
Bt1—15 to 22 inches; clay
Bt2—22 to 37 inches; clay
Bt3—37 to 50 inches; clay
BCt—50 to 67 inches; clay

Dissimilar Minor Components

Hemcross soils
Percentage of map unit: 4 percent
Landform: Linear and concave areas of mountain slopes

Klistan soils
Percentage of map unit: 4 percent
Landform: Linear and concave areas of mountain slopes

Formader soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Harslow soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Peavine soils, basalt bedrock
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Kilchis soils
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes

Major Uses

Shivigny and Honeygrove—forestland, recreation, wildlife habitat

Major Management Limitations

Shivigny and Honeygrove—slope, content of clay

146—Slickrock gravelly medial loam, 3 to 25 percent slopes

Map Unit Setting

General landscape: Coast Range mountains
Major land resource area (MLRA): 1
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Map Unit Composition

Slickrock and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Slickrock

Setting
Landform: Concave and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes, summits
Downslope shape: Linear, convex
Across-slope shape: Convex
Aspect (representative): Northwest
Aspect (range): Southeast to east (clockwise)

Properties and qualities
Parent material: Recent loamy colluvium over older loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 3 to 25 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 14 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 11 inches; gravelly medial loam
A2—11 to 23 inches; gravelly medial loam
Bw1—23 to 36 inches; gravelly clay loam
Bw2—36 to 48 inches; gravelly clay loam
BC—48 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Blachly soils
Percentage of map unit: 5 percent
Landform: Concave areas of mountain slopes

Preacher soils
Percentage of map unit: 5 percent
Landform: Linear to slightly convex areas of mountain slopes

Major Uses

Forestland, recreation, wildlife habitat

Major Management Limitation

Slope

147—Steiwer-Chehulpum complex, 3 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Steiwer and similar soils: 49 percent
Chehulpum and similar soils: 41 percent
Dissimilar minor components: 10 percent

Characteristics of Steiwer

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Convex, linear
Across-slope shape: Linear, convex

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
A1—0 to 7 inches; silt loam
A2—7 to 15 inches; silt loam

Bw1—15 to 19 inches; silty clay loam
Bw2—19 to 26 inches; silty clay loam
2Cr—26 to 36 inches; weathered bedrock

Characteristics of Chehulpum

Setting
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, interfluves
Downslope shape: Convex, linear
Across-slope shape: Linear, convex

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 3 to 12 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 6e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 12 inches; paragravelly silt loam
2Cr—12 to 22 inches; weathered bedrock

Dissimilar Minor Components

Hazelair soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Dupee soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Helmick soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Wellsdale soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Major Uses

Cropland, homesite development

Major Management Limitation

Slope

148—Steiwer-Chehulpum complex, 12 to 30 percent slopes

Map Unit Setting

General landscape: Hills (fig. 15)
Major land resource area (MLRA): 2
Elevation: 250 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Steiwer and similar soils: 50 percent
Chehulpum and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Steiwer

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Linear, convex
Across-slope shape: Convex, linear
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone

Figure 15.—Typical area of Steiwer-Chehulpum complex, 12 to 30 percent slopes.

Slope range: 12 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 7 inches; silt loam
A2—7 to 15 inches; silt loam
Bw1—15 to 19 inches; silty clay loam
Bw2—19 to 26 inches; silty clay loam
2Cr—26 to 36 inches; weathered bedrock

Characteristics of Chehulpum

Setting
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Shoulders, backslopes, footslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes, base slopes
Downslope shape: Convex, concave, linear
Across-slope shape: Linear, convex
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 12 to 30 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 12 inches; paragravelly silt loam
2Cr—12 to 22 inches; weathered bedrock

Dissimilar Minor Components

Hazelair soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Dupee soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Helmick soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Wellsdale soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Major Uses

Cropland, homesite development

Major Management Limitations

Slope, depth to bedrock

149—Steiwer-Chehulpum complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 250 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Steiwer and similar soils: 50 percent
Chehulpum and similar soils: 39 percent
Dissimilar minor components: 11 percent

Characteristics of Steiwer

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (representative): Southeast
Aspect (range): Northeast to southwest (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
A1—0 to 7 inches; silt loam
A2—7 to 15 inches; silt loam
Bw1—15 to 19 inches; silty clay loam
Bw2—19 to 26 inches; silty clay loam
2Cr—26 to 36 inches; weathered bedrock

Characteristics of Chehulpum

Setting
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (representative): Southeast
Aspect (range): Northeast to southwest (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 12 inches; paragravelly silt loam
2Cr—12 to 22 inches; weathered bedrock

Dissimilar Minor Components

Hazelair soils
Percentage of map unit: 4 percent
Landform: Concave and linear areas of hillslopes

Dupee soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Helmick soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Wellsdale soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Major Uses

Forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Slope, depth to bedrock

150—Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 1
Elevation: 300 to 800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Map Unit Composition

Treharne and similar soils: 35 percent
Eilertsen and similar soils: 30 percent
Zyzzug and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Treharne

Setting
Landform: Linear to slightly concave areas of stream terraces

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 21 to 32 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Land capability subclass (irrigated): 2c

Typical profile
Ap—0 to 6 inches; silt loam
A—6 to 14 inches; silt loam

Bt1—14 to 21 inches; silty clay loam
Bt2—21 to 32 inches; silty clay loam
C—32 to 68 inches; silty clay loam

Characteristics of Eilertsen

Setting
Landform: Nearly level to gently sloping, slightly convex areas of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Linear

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 7 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 45 to 54 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 13.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Land capability subclass (irrigated): 2c

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 9 inches; silt loam
A2—9 to 18 inches; silt loam
Bt1—18 to 29 inches; silty clay loam
Bt2—29 to 45 inches; silty clay loam
2BC—45 to 54 inches; loam
2C—54 to 72 inches; loam

Characteristics of Zyzzug

Setting
Landform: Depressions of stream terraces
Geomorphic position (three-dimensional): Treads
Downslope shape: Concave
Across-slope shape: Concave

Properties and qualities
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Rare (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): At the surface to a depth of 12 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
A—0 to 12 inches; silt loam
Bg—12 to 36 inches; silty clay loam
BC—36 to 42 inches; silty clay loam
C—42 to 63 inches; clay loam

Dissimilar Minor Components

Meda soils
Percentage of map unit: 5 percent
Landform: Gently sloping to strongly sloping areas of alluvial fans

Wasson soils
Percentage of map unit: 3 percent
Landform: Depressions of flood plains

Fluvaquents
Percentage of map unit: 2 percent
Landform: Depressions of flood plains

Kirkendall soils
Percentage of map unit: 2 percent
Landform: Bars, convex areas of flood plains

Nekoma soils
Percentage of map unit: 2 percent
Landform: Linear to slightly convex areas of flood plains
Geomorphic position (three-dimensional): Treads

Quosatana soils
Percentage of map unit: 1 percent
Landform: Depressions of flood plains

Major Uses

Treharne—cropland, forestland, recreation, wildlife habitat
Eilertsen—cropland, homesite development, forestland, recreation, wildlife habitat
Zyzzug—cropland, recreation, wildlife habitat

Major Management Limitations

Treharne—depth to saturated zone, low soil strength, restricted permeability
Eilertsen—low soil strength, restricted permeability
Zyzzug—rare flooding, depth to saturated zone, low soil strength, wetness

151—Valsetz-Yellowstone complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Valsetz and similar soils: 55 percent
Yellowstone and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Valsetz soils

Setting

Landform: Mountains
Geomorphic position (two-dimensional): Summits, backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Mountaintops, center third of mountain flanks, lower third of mountain flanks, mountain bases
Downslope shape: Convex, linear, concave
Across-slope shape: Convex, concave
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
Oi—0 to 3 inches; slightly decomposed plant material
A—3 to 11 inches; very stony medial loam
Bw1—11 to 21 inches; very cobbly medial sandy loam
Bw2—21 to 30 inches; extremely cobbly medial sandy loam
Bw3—30 to 35 inches; extremely cobbly medial sandy loam
R—35 to 39 inches; unweathered bedrock

Characteristics of Yellowstone

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): East
Aspect (range): Northwest to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope range: 3 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very stony medial loam
AC—4 to 9 inches; very stony medial loam
C—9 to 18 inches; extremely stony medial loam
R—18 to 22 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Woodspoint soils
Percentage of map unit: 4 percent
Landform: Concave areas of mountain slopes

Luckiamute soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Maryspeak soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Mulkey soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of mountain slopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Valsetz and Yellowstone—forestland, recreation, wildlife habitat

Major Management Limitations

Valsetz and Yellowstone—slope, depth to bedrock, content of rock fragments, content of large stones on surface

152—Valsetz-Yellowstone complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches

Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Valsetz and similar soils: 65 percent
Yellowstone and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Valsetz

Setting
Landform: Mountains
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Center third of mountain flanks, lower third of mountain flanks, mountain bases
Downslope shape: Linear, concave, convex
Across-slope shape: Concave, linear, convex
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
Oi—0 to 3 inches; slightly decomposed plant material
A—3 to 11 inches; very stony medial loam
Bw1—11 to 21 inches; very cobbly medial sandy loam
Bw2—21 to 30 inches; extremely cobbly medial sandy loam
Bw3—30 to 35 inches; extremely cobbly medial sandy loam
R—35 to 39 inches; unweathered bedrock

Characteristics of Yellowstone

Setting
Landform: Convex areas of mountain slopes (fig. 16)
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope range: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None

Figure 16.—Typical area of Yellowstone very stony medial loam on convex backslopes in an area of Valsetz-Yellowstone complex, 30 to 60 percent slopes.

Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very stony medial loam
AC—4 to 9 inches; very stony medial loam
C—9 to 18 inches; extremely stony medial loam
R—18 to 22 inches; unweathered bedrock

Dissimilar Minor Components

Lurnick soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Mulkey soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of mountain slopes

Woodspoint soils
Percentage of map unit: 3 percent
Landform: Concave areas of mountain slopes

Luckiamute soils
Percentage of map unit: 2 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Maryspeak soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Rock outcrop
Percentage of map unit: 2 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Valsetz and Yellowstone—forestland, recreation, wildlife habitat

Major Management Limitations

Valsetz and Yellowstone—slope, depth to bedrock, content of rock fragments, content of large stones on surface

153—Valsetz-Yellowstone complex, 60 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 1
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Valsetz and similar soils: 65 percent
Yellowstone and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Valsetz

Setting
Landform: Mountains
Geomorphic position (two-dimensional): Backslopes, footslopes, toeslopes
Geomorphic position (three-dimensional): Lower third of mountain flanks, center third of mountain flanks, mountain bases
Downslope shape: Convex, concave
Across-slope shape: Convex, concave, linear
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None

Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 3 inches; slightly decomposed plant material
A—3 to 11 inches; very stony medial loam
Bw1—11 to 21 inches; very cobbly medial sandy loam
Bw2—21 to 30 inches; extremely cobbly medial sandy loam
Bw3—30 to 35 inches; extremely cobbly medial sandy loam
R—35 to 39 inches; unweathered bedrock

Characteristics of Yellowstone

Setting
Landform: Convex areas of mountain slopes
Aspect (representative): East
Aspect (range): West to southwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope range: 60 to 90 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very stony medial loam
AC—4 to 9 inches; very stony medial loam
C—9 to 18 inches; extremely stony medial loam
R—18 to 22 inches; unweathered bedrock

Dissimilar Minor Components

Luckiamute soils
Percentage of map unit: 4 percent
Landform: Convex areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders

Lurnick soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Woodspoint soils
Percentage of map unit: 3 percent
Landform: Concave areas of mountain slopes

Maryspeak soils
Percentage of map unit: 2 percent
Landform: Linear and concave areas of landslides on mountain slopes
Geomorphic position (two-dimensional): Summits, backslopes, footslopes

Rock outcrop
Percentage of map unit: 2 percent
Landform: Crests and shoulders of mountain slopes

Major Uses

Valsetz and Yellowstone—forestland, recreation, wildlife habitat

Major Management Limitations

Valsetz and Yellowstone—slope, depth to bedrock, content of rock fragments, content of large stones on surface

154—Verboort silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Verboort and similar soils: 97 percent
Dissimilar minor components: 3 percent

Characteristics of Verboort

Setting
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Loamy alluvium over silty and clayey glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 16 to 26 inches to abrupt textural change
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: Frequent (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): At the surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 8 inches; silty clay loam
A—8 to 12 inches; silty clay loam
E—12 to 19 inches; silty clay loam
2Bt—19 to 28 inches; clay
2BCt—28 to 33 inches; silty clay
2C—33 to 60 inches; silty clay loam

Dissimilar Minor Components

Waldo soils
Percentage of map unit: 2 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Woodburn soils
Percentage of map unit: 1 percent
Landform: Convex areas of terraces

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, content of clay, shrink-swell potential, shallow to abrupt textural change

155—Waldo silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 100 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Waldo and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Waldo

Setting
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Clayey alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches

Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 2 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap1—0 to 2 inches; silty clay loam
Ap2—2 to 7 inches; silty clay loam
A—7 to 10 inches; silty clay loam
BA—10 to 15 inches; clay
Bg1—15 to 23 inches; clay
Bg2—23 to 37 inches; clay
BCg—37 to 46 inches; silty clay
Cg—46 to 60 inches; silty clay

Dissimilar Minor Components

Chehalem soils
Percentage of map unit: 3 percent
Landform: Linear areas of alluvial fans and terraces

McAlpin soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of alluvial fans

Major Uses

Cropland, wildlife habitat (fig. 17)

Major Management Limitations

Flooding, depth to saturated zone, content of clay, shrink-swell potential, ponding

156—Waldo silty clay loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Waldo, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Figure 17.—Natural vegetation used as wildlife habitat in an area of Waldo silty clay loam, 0 to 3 percent slopes.

Characteristics of Waldo, High Precipitation

Setting
Landform: Depressions of flood plains
Geomorphic position (three-dimensional): Treads
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Clayey alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 2 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap1—0 to 2 inches; silty clay loam
Ap2—2 to 7 inches; silty clay loam

A—7 to 10 inches; silty clay loam
BA—10 to 15 inches; clay
Bg1—15 to 23 inches; clay
Bg2—23 to 37 inches; clay
BCg—37 to 46 inches; silty clay
Cg—46 to 60 inches; silty clay

Dissimilar Minor Components

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Chehalis soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Cloquato soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of flood plains

McAlpin soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of stream terraces

Newberg soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Major Uses

Cropland, forestland, recreation, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, restricted permeability, shrink-swell potential, ponding

157—Wapato silty clay loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 50 to 1,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Wapato and similar soils: 89 percent
Dissimilar minor components: 11 percent

Characteristics of Wapato

Setting
Landform: Concave areas of flood plains

Properties and qualities
Parent material: Silty alluvium
Slope range: 0 to 3 percent

Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 9 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 9 inches; silty clay loam
A—9 to 16 inches; silty clay loam
Bg1—16 to 22 inches; silty clay loam
Bg2—22 to 32 inches; silty clay loam
BCg—32 to 60 inches; silty clay

Dissimilar Minor Components

Chehalis soils
Percentage of map unit: 7 percent
Landform: Linear areas of flood plains

McBee soils
Percentage of map unit: 3 percent
Landform: Concave areas of flood plains

Waldo soils
Percentage of map unit: 1 percent
Landform: Concave areas of flood plains
Geomorphic position (three-dimensional): Treads

Major Uses

Cropland, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, ponding

158—Wapato silty clay loam, high precipitation, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 190 to 300 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Wapato, high precipitation, and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Wapato, High Precipitation

Setting
Landform: Depressions of flood plains

Properties and qualities
Parent material: Silty alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface to a depth of 9 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w

Typical profile
Ap—0 to 9 inches; silty clay loam
A—9 to 16 inches; silty clay loam
Bg1—16 to 22 inches; silty clay loam
Bg2—22 to 32 inches; silty clay loam
BCg—32 to 60 inches; silty clay

Dissimilar Minor Components

Alsea soils, rarely flooded
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Chehalis soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Cloquato soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly concave areas of flood plains

Fluvents, high precipitation
Percentage of map unit: 1 percent
Landform: Linear areas of flood plains

Newberg soils, high precipitation
Percentage of map unit: 1 percent
Landform: Linear to slightly convex areas of flood plains

Major Uses

Cropland, forestland, recreation, wildlife habitat

Major Management Limitations

Flooding, depth to saturated zone, ponding

159—Water

Major land resource area (MLRA): 2
Composition of map unit: Water—100 percent
Depth to restrictive feature: None within 60 inches
Capacity of the most limiting soil layer to transmit water (Ksat): Unspecified
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic

160—Wellsdale-Willakenzie complex, 20 to 30 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Wellsdale and similar soils: 60 percent
Willakenzie and similar soils: 33 percent
Dissimilar minor components: 7 percent

Characteristics of Wellsdale

Setting
Landform: Concave and linear areas of hillslopes
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 34 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; loam
BA—8 to 24 inches; loam
Bt1—24 to 34 inches; loam
Bt2—34 to 57 inches; clay loam
BCt—57 to 65 inches; clay loam

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Dissimilar Minor Components

Dupee soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of hillslopes

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Jory soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Interfluves, base slopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, homesite development

Major Management Limitations

Wellsdale—depth to saturated zone, slope
Willakenzie—slope, depth to bedrock

161—Wellsdale-Willakenzie-Dupee complex, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Wellsdale and similar soils: 54 percent
Willakenzie and similar soils: 33 percent
Dupee and similar soils: 10 percent
Dissimilar minor components: 3 percent

Characteristics of Wellsdale

Setting
Landform: Concave and linear areas of hillslopes

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 34 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; loam
BA—8 to 24 inches; loam
Bt1—24 to 34 inches; loam
Bt2—34 to 57 inches; clay loam
BCt—57 to 65 inches; clay loam

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Characteristics of Dupee

Setting
Landform: Concave areas of hillslopes
Geomorphic position (two-dimensional): Summits, toeslopes
Geomorphic position (three-dimensional): Base slopes, side slopes
Downslope shape: Linear
Across-slope shape: Concave

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam

AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Dissimilar Minor Components

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, homesite development

Major Management Limitations

Wellsdale—depth to saturated zone
Willakenzie—depth to bedrock
Dupee—depth to saturated zone, content of clay, shrink-swell potential

162—Wellsdale-Willakenzie-Dupee complex, 12 to 20 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Wellsdale, north slopes, and similar soils: 60 percent
Willakenzie, north slopes, and similar soils: 27 percent
Dupee, north slopes, and similar soils: 10 percent
Dissimilar minor components: 3 percent

Characteristics of Wellsdale, North Slopes

Setting
Landform: Concave and linear areas of hillslopes
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches

Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 34 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; loam
BA—8 to 24 inches; loam
Bt1—24 to 34 inches; loam
Bt2—34 to 57 inches; clay loam
BCt—57 to 65 inches; clay loam

Characteristics of Willakenzie, North Slopes

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Characteristics of Dupee, North Slopes

Setting
Landform: Concave areas of hillslopes
Geomorphic position (two-dimensional): Footslopes
Geomorphic position (three-dimensional): Base slopes
Downslope shape: Concave
Across-slope shape: Linear, concave

Aspect (representative): Northeast
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 9 to 17 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 4 inches; silt loam
A2—4 to 9 inches; silt loam
AB—9 to 17 inches; silty clay loam
BA—17 to 24 inches; silty clay loam
Bt1—24 to 34 inches; silty clay
Bt2—34 to 42 inches; silty clay
BCt—42 to 51 inches; silty clay
Cg—51 to 62 inches; silty clay

Dissimilar Minor Components

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, homesite development

Major Management Limitations

Wellsdale—depth to saturated zone, slope
Willakenzie—slope, depth to bedrock
Dupee—depth to saturated zone, content of clay, shrink-swell potential, slope

163—Willakenzie loam, 2 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2

Elevation: 200 to 600 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willakenzie and similar soils: 83 percent
Dissimilar minor components: 17 percent

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Dissimilar Minor Components

Wellsdale soils
Percentage of map unit: 10 percent
Landform: Concave areas of hillslopes

Dupee soils
Percentage of map unit: 4 percent
Landform: Concave areas of hillslopes

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitation

Depth to bedrock

164—Willakenzie loam, 12 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 600 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willakenzie and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes
Aspect (range): All aspects

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Dissimilar Minor Components

Wellsdale soils
Percentage of map unit: 5 percent
Landform: Concave areas of hillslopes

Dupee soils
Percentage of map unit: 4 percent
Landform: Concave areas of hillslopes

Sitton soils
Percentage of map unit: 3 percent
Landform: Hillslopes

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Slope, depth to bedrock

165—Willakenzie loam, 20 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 600 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willakenzie and similar soils: 86 percent
Dissimilar minor components: 14 percent

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): Southwest
Aspect (range): East to northwest (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline

Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Dissimilar Minor Components

Wellsdale soils
Percentage of map unit: 5 percent
Landform: Concave areas of hillslopes

Dupee soils
Percentage of map unit: 3 percent
Landform: Concave areas of hillslopes

Sitton soils
Percentage of map unit: 3 percent
Landform: Hillslopes

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils, 12 to 20 percent slopes
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Slope, depth to bedrock

166—Willakenzie loam, 30 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 600 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willakenzie and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): East
Aspect (range): North to south (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Dissimilar Minor Components

Sitton soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Wellsdale soils
Percentage of map unit: 2 percent
Landform: Concave areas of hillslopes

Chehulpum soils
Percentage of map unit: 1 percent
Landform: Convex areas of hillslopes

Dupee soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Slope, depth to bedrock

167—Willakenzie-Wellsdale complex, 12 to 20 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willakenzie, south slopes, and similar soils: 78 percent
Wellsdale, south slopes, and similar soils: 15 percent
Dissimilar minor components: 7 percent

Characteristics of Willakenzie, South Slopes

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): Southwest
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Characteristics of Wellsdale, South Slopes

Setting
Landform: Concave and linear areas of hillslopes
Aspect (representative): Southwest
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 34 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; loam
BA—8 to 24 inches; loam
Bt1—24 to 34 inches; loam
Bt2—34 to 57 inches; clay loam
BCt—57 to 65 inches; clay loam

Dissimilar Minor Components

Dupee soils
Percentage of map unit: 3 percent
Landform: Concave and linear areas of hillslopes

Chehulpum soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, homesite development

Major Management Limitations

Willakenzie—slope, depth to bedrock
Wellsdale—depth to saturated zone, slope

168—Willakenzie-Wellsdale complex, 20 to 30 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2

Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willakenzie and similar soils: 79 percent
Wellsdale and similar soils: 15 percent
Dissimilar minor components: 6 percent

Characteristics of Willakenzie

Setting
Landform: Convex and linear areas of hillslopes
Aspect (representative): Southwest
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
Ap—0 to 5 inches; loam
A—5 to 11 inches; loam
Bt1—11 to 19 inches; clay loam
Bt2—19 to 32 inches; paragravelly clay loam
Cr—32 to 42 inches; weathered bedrock

Characteristics of Wellsdale

Setting
Landform: Concave and linear areas of hillslopes
Aspect (representative): Southwest
Aspect (range): Northwest to southeast (clockwise)

Properties and qualities
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope range: 20 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 34 inches (see Water Features table)
Salinity (maximum): Not saline

Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; loam
BA—8 to 24 inches; loam
Bt1—24 to 34 inches; loam
Bt2—34 to 57 inches; clay loam
BCt—57 to 65 inches; clay loam

Dissimilar Minor Components

Chehulpum soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Dupee soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of hillslopes

Hazelair soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of hillslopes

Panther soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of slumps

Major Uses

Cropland, forestland, wildlife habitat, homesite development

Major Management Limitations

Willakenzie—slope, depth to bedrock
Wellsdale—depth to saturated zone, slope

169—Willamette silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willamette and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Willamette

Setting
Landform: Convex and linear areas of terraces

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 1
Land capability subclass (irrigated): 1

Typical profile
Ap—0 to 6 inches; silt loam
A—6 to 13 inches; silt loam
AB—13 to 24 inches; silt loam
BA—24 to 33 inches; silty clay loam
2Bt—33 to 45 inches; silty clay loam
2BCt—45 to 53 inches; silty clay loam
2C—53 to 60 inches; silty clay loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 4 percent
Landform: Concave areas of terraces

Dayton soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of terraces

Major Use

Cropland

Major Management Limitations

None

170—Willamette silt loam, 3 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willamette and similar soils: 94 percent
Dissimilar minor components: 6 percent

Characteristics of Willamette

Setting
Landform: Convex and linear areas of terraces

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap—0 to 6 inches; silt loam
A—6 to 13 inches; silt loam
AB—13 to 24 inches; silt loam
BA—24 to 33 inches; silty clay loam
2Bt—33 to 45 inches; silty clay loam
2BCt—45 to 53 inches; silty clay loam
2C—53 to 60 inches; silty clay loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 3 percent
Landform: Concave areas of terraces

Dayton soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of terraces

Major Use

Cropland

Major Management Limitations

None

171—Willamette silt loam, 12 to 20 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willamette and similar soils: 97 percent
Dissimilar minor components: 3 percent

Characteristics of Willamette

Setting
Landform: Convex areas of terraces
Aspect (range): All aspects

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 6 inches; silt loam
A—6 to 13 inches; silt loam
AB—13 to 24 inches; silt loam
BA—24 to 33 inches; silty clay loam
2Bt—33 to 45 inches; silty clay loam
2BCt—45 to 53 inches; silty clay loam
2C—53 to 60 inches; silty clay loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 2 percent
Landform: Concave areas of terraces

Dayton soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of terraces

Major Use

Cropland

Major Management Limitation

Slope

172—Witham silty clay loam, 2 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2

Elevation: 250 to 1,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Witham and similar soils: 79 percent
Dissimilar minor components: 21 percent

Characteristics of Witham

Setting
Landform: Concave and linear areas of alluvial fans

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 2 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 12 to 21 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 12 inches; silty clay
Bw1—12 to 21 inches; clay
Bw2—21 to 29 inches; clay
C—29 to 60 inches; clay

Dissimilar Minor Components

Bashaw soils, nonflooded
Percentage of map unit: 10 percent
Landform: Concave areas of hillslopes

Gellatly soils
Percentage of map unit: 4 percent
Landform: Convex and linear areas of hillslopes

Dixonville soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

McAlpin soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of alluvial fans

Ritner soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Major Uses

Cropland, wildlife habitat, recreation, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential

173—Witham silty clay loam, 12 to 20 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 250 to 1,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Witham and similar soils: 82 percent
Dissimilar minor components: 18 percent

Characteristics of Witham

Setting
Landform: Concave and linear areas of alluvial fans
Aspect (representative): North
Aspect (range): Southwest to southeast (clockwise)

Properties and qualities
Parent material: Clayey alluvium derived from basalt
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 12 to 21 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 12 inches; silty clay
Bw1—12 to 21 inches; clay
Bw2—21 to 29 inches; clay
C—29 to 60 inches; clay

Dissimilar Minor Components

Dixonville soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Bashaw soils, nonflooded
Percentage of map unit: 3 percent
Landform: Concave areas of hillslopes

McAlpin soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of alluvial fans

Ritner soils
Percentage of map unit: 2 percent
Landform: Convex areas of hillslopes

Major Uses

Forestland, wildlife habitat, recreation, homesite development

Major Management Limitations

Depth to saturated zone, content of clay, shrink-swell potential, slope

174—Witzel-Ritner complex, 3 to 12 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 240 to 2,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Witzel and similar soils: 46 percent
Ritner and similar soils: 44 percent
Dissimilar minor components: 10 percent

Characteristics of Witzel

Setting
Landform: Convex areas of hillslopes

Properties and qualities
Parent material: Loamy colluvium derived from basalt
Slope range: 3 to 12 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
A—0 to 4 inches; very cobbly loam
Bw1—4 to 11 inches; very cobbly clay loam
Bw2—11 to 17 inches; very cobbly clay loam
R—17 to 21 inches; unweathered bedrock

Characteristics of Ritner

Setting
Landform: Convex areas of hillslopes
Geomorphic position (two-dimensional): Summits
Geomorphic position (three-dimensional): Interfluves
Downslope shape: Convex
Across-slope shape: Convex, linear

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; gravelly silty clay loam
BA—6 to 16 inches; gravelly silty clay loam
Bw1—16 to 25 inches; very cobbly silty clay
Bw2—25 to 39 inches; very cobbly silty clay
2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Dixonville soils
Percentage of map unit: 5 percent
Landform: Convex and linear areas of hillslopes

Nekia soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Jory soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes

Major Uses

Cropland, wildlife habitat, recreation

Major Management Limitations

Witzel and Ritner—content of rock fragments, depth to bedrock
Witzel—content of large stones on surface
Ritner—content of clay

175—Witzel-Ritner complex, 12 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 2
Elevation: 240 to 2,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Witzel and similar soils: 46 percent
Ritner and similar soils: 44 percent
Dissimilar minor components: 10 percent

Characteristics of Witzel

Setting
Landform: Convex areas of hillslopes
Aspect (representative): South
Aspect (range): Northeast to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt
Slope range: 12 to 30 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
A—0 to 4 inches; very cobbly loam
Bw1—4 to 11 inches; very cobbly clay loam
Bw2—11 to 17 inches; very cobbly clay loam
R—17 to 21 inches; unweathered bedrock

Characteristics of Ritner

Setting
Landform: Convex and linear areas of hillslopes
Geomorphic position (two-dimensional): Shoulders, backslopes

Geomorphic position (three-dimensional): Side slopes, nose slopes
Downslope shape: Convex, linear
Across-slope shape: Linear, convex
Aspect (representative): South
Aspect (range): Northeast to west (clockwise)

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 12 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; gravelly silty clay loam
BA—6 to 16 inches; gravelly silty clay loam
Bw1—16 to 25 inches; very cobbly silty clay
Bw2—25 to 39 inches; very cobbly silty clay
2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Dixonville soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

MacDunn soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of mountain slopes

Nekia soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Jory soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Witzel and Ritner—content of rock fragments, slope, depth to bedrock
Witzel—content of large stones on surface
Ritner—content of clay

176—Witzel-Ritner complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 2
Elevation: 240 to 2,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Map Unit Composition

Witzel and similar soils: 46 percent
Ritner and similar soils: 44 percent
Dissimilar minor components: 10 percent

Characteristics of Witzel

Setting
Landform: Convex and linear areas of mountain slopes
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities
Parent material: Loamy colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
A—0 to 4 inches; very cobbly loam
Bw1—4 to 11 inches; very cobbly clay loam
Bw2—11 to 17 inches; very cobbly clay loam
R—17 to 21 inches; unweathered bedrock

Characteristics of Ritner

Setting
Landform: Convex and linear areas of mountain slopes
Geomorphic position (two-dimensional): Backslopes
Geomorphic position (three-dimensional): Nose slopes, side slopes
Downslope shape: Convex, linear

Across-slope shape: Convex, linear
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities
Parent material: Clayey colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; gravelly silty clay loam
BA—6 to 16 inches; gravelly silty clay loam
Bw1—16 to 25 inches; very cobbly silty clay
Bw2—25 to 39 inches; very cobbly silty clay
2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Dixonville soils
Percentage of map unit: 3 percent
Landform: Convex and linear areas of hillslopes

MacDunn soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of mountain slopes

Nekia soils
Percentage of map unit: 2 percent
Landform: Convex and linear areas of hillslopes

Gellatly soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Jory soils
Percentage of map unit: 1 percent
Landform: Concave areas of hillslopes

Rock outcrop
Percentage of map unit: 1 percent
Landform: Convex areas of mountain slopes

Major Uses

Cropland, forestland, wildlife habitat, recreation

Major Management Limitations

Witzel and Ritner—content of rock fragments, slope, depth to bedrock

Witzel—content of large stones on surface
Ritner—content of clay

177—Woodburn silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Woodburn and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Woodburn

Setting
Landform: Convex and linear areas of terraces

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 25 to 32 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2w
Land capability subclass (irrigated): 2w

Typical profile
Ap—0 to 9 inches; silt loam
A—9 to 17 inches; silt loam
2Bt1—17 to 25 inches; silty clay loam
2Bt2—25 to 32 inches; silty clay loam
2BCt1—32 to 39 inches; silt loam
2BCt2—39 to 54 inches; silt loam
2C1—54 to 68 inches; silt loam
2C2—68 to 80 inches; stratified fine sandy loam to silt loam
3C3—80 to 92 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 5 percent
Landform: Concave areas of terraces

Dayton soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of terraces

Huberly soils
Percentage of map unit: 1 percent
Landform: Concave areas of terraces

Major Uses

Cropland, urban development

Major Management Limitation

Depth to saturated zone

178—Woodburn silt loam, 3 to 12 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Woodburn and similar soils: 92 percent
Dissimilar minor components: 8 percent

Characteristics of Woodburn

Setting
Landform: Convex and linear areas of terraces

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 3 to 12 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 25 to 32 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e

Typical profile
Ap—0 to 9 inches; silt loam
A—9 to 17 inches; silt loam
2Bt1—17 to 25 inches; silty clay loam
2Bt2—25 to 32 inches; silty clay loam

2BCt1—32 to 39 inches; silt loam
2BCt2—39 to 54 inches; silt loam
2C1—54 to 68 inches; silt loam
2C2—68 to 80 inches; stratified fine sandy loam to silt loam
3C3—80 to 92 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 5 percent
Landform: Concave areas of terraces

Dayton soils
Percentage of map unit: 2 percent
Landform: Concave and linear areas of terraces

Huberly soils
Percentage of map unit: 1 percent
Landform: Concave areas of terraces

Major Use

Cropland

Major Management Limitation

Depth to saturated zone

179—Woodburn silt loam, 12 to 20 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Woodburn and similar soils: 94 percent
Dissimilar minor components: 6 percent

Characteristics of Woodburn

Setting
Landform: Convex areas of terraces
Aspect (representative): East
Aspect (range): North to south (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 12 to 20 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 25 to 32 inches (see Water Features table)

Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Typical profile
Ap—0 to 9 inches; silt loam
A—9 to 17 inches; silt loam
2Bt1—17 to 25 inches; silty clay loam
2Bt2—25 to 32 inches; silty clay loam
2BCt1—32 to 39 inches; silt loam
2BCt2—39 to 54 inches; silt loam
2C1—54 to 68 inches; silt loam
2C2—68 to 80 inches; stratified fine sandy loam to silt loam
3C3—80 to 92 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Amity soils
Percentage of map unit: 4 percent
Landform: Concave areas of terraces

Dayton soils
Percentage of map unit: 1 percent
Landform: Concave and linear areas of terraces

Huberly soils
Percentage of map unit: 1 percent
Landform: Concave areas of terraces

Major Use

Cropland

Major Management Limitations

Depth to saturated zone, slope

180—Woodburn silt loam, 20 to 55 percent slopes

Map Unit Setting

General landscape: Valleys
Major land resource area (MLRA): 2
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Woodburn and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Woodburn

Setting
Landform: Convex and linear areas of terraces
Aspect (representative): East
Aspect (range): North to south (clockwise)

Properties and qualities
Parent material: Silty glaciolacustrine deposits
Slope range: 20 to 55 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): About 25 to 32 inches (see Water Features table)
Salinity (maximum): Not saline
Sodicity (maximum): Not sodic
Available water capacity (entire profile): Very high (about 17.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e

Typical profile
Ap—0 to 9 inches; silt loam
A—9 to 17 inches; silt loam
2Bt1—17 to 25 inches; silty clay loam
2Bt2—25 to 32 inches; silty clay loam
2BCt1—32 to 39 inches; silt loam
2BCt2—39 to 54 inches; silt loam
2C1—54 to 68 inches; silt loam
2C2—68 to 80 inches; stratified fine sandy loam to silt loam
3C3—80 to 92 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Component

Woodburn soils, 12 to 20 percent slopes
Percentage of map unit: 5 percent
Landform: Convex areas of terraces

Major Uses

Forestland, wildlife habitat

Major Management Limitations

Depth to saturated zone, slope

Use and Management of the Soils

This soil survey is an inventory and evaluation of soils. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the county for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact

on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Cropland

General management needed for crops and for hay and pasture is suggested in this section. The estimated yields of the main crops and hay and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Approximately 218,000 acres, or about 50 percent of the county, has soil characteristics and climatic conditions favorable for the production of crops. About 70,000 acres is used for nonirrigated crops, mainly grass seed. Smaller acreages of small grain, such as winter wheat; row crops, such as vegetables and berries; specialty crops, such as mint, dill, and wine and table grapes; fruit and nut orchards; Christmas trees; and nursery crops are produced in the county. Crops, including forage for hay and pasture, are grown in the Willamette Valley, Alsea Valley, and Kings Valley and on the foothills above the floor of these valleys. The soils have many physical and chemical characteristics that influence their potential for crop production. Productivity can be maintained or improved only if the soil characteristics are considered in management decisions.

In recent years, economically significant agricultural industries, such as production of wine grapes and nursery crops, have been developed throughout the Willamette Valley. This section provides an overall agricultural perspective and contains information applicable to the entire Willamette Valley area, including the part that is in Benton County. It discusses a wide variety of crops typically grown and addresses the major use and management considerations for raising and harvesting these crops. There is variability from one county to the next and from one end of the valley to the other because of a number of factors.

All of the subsections in this section have been authored by individuals who have many years of practical field experience and have applied their research experience throughout many of the counties in the Willamette Valley. They represent specialists that growers and industry representatives seek out to address questions, problems, and concerns. They are all closely allied with their respective agricultural industries, creating new crop varieties and establishing new market opportunities, developing better management applications for crop production, and working to more fully understand the natural processes (biological, chemical, physiological, and others) involved in agricultural crop production.

The Willamette Valley is one of the most diverse and productive agricultural areas in the United States. The soils, landscapes, and climate of the area allow for the growth of more than 150 kinds of crops. The Willamette Valley provides about 90 percent of the world’s supply of filberts (hazelnuts), and it is a major National supplier of perennial ryegrass seed, sugar beet seed, and peppermint. This region has a Mediterranean climate, with hot, dry summers and warm, wet winters. The soils have a xeric moisture regime and a mesic temperature regime. The mean annual rainfall in the valley is about 40 inches, and the mean annual air temperature is slightly above 52 degrees F (Huddleston, 1993).

Most of the annual precipitation occurs between November 1 and May 31. It occurs mainly as low-intensity rainfall with very few, if any, thunderstorms. The erosive potential of the rain in this area is substantially lower than that in other parts of the country that receive similar amounts of annual rainfall. This has an important influence on agriculture in the Willamette Valley. Even the best soils, those that have the deepest profile and highest available water capacity and are well drained,

medium textured, and permeable, are not able to receive and store all of the rainwater that falls during the rainy period. Runoff and the resulting water erosion occur not only on the sloping hills but also on the nearly level, broad valley terraces. The mesic temperature regime of the soils in the valley results in a growing season of 165 to 210 days for most agricultural crops, and it is perhaps a week or so less on the surrounding hillslopes (Langridge, 1987). During the growing season, the average cumulative precipitation in June, July, and August is slightly more than 2 inches while the consumptive use needs range from more than 8 inches for beans to more than 15 inches for sweet corn (Watts and others, 1968). Irrigation is needed for maximum production of the wide variety of agricultural crops grown. Irrigation water is available from groundwater wells and the Willamette River and its tributaries. The availability of irrigation water is limited in many of the foothill areas of the valley; thus, agriculture in these areas is restricted to nonirrigated crops such as winter wheat, hay and pasture, nut orchards, vineyards, and Christmas trees.

Runoff and erosion are particularly serious management concerns on soils that have a restrictive layer of clay or bedrock at a shallow depth (fig. 18). These soils tend to have a limited water storage capacity, resulting in overland flow of excess rainfall that causes sheet and rill erosion. In areas of these soils on sloping hillsides, the potential for soil erosion is substantial. Cross-slope tile drains can be very effective in controlling erosion (Huddleston, 1993).

The Willamette Valley can be separated into three general physiographic areas—the main valley floor, the surrounding hills and foothills, and the steeper slopes of the

Figure 18.—Effects of water erosion on Chehulpum silt loam in an area of Steiwer-Chehulpum complex, 12 to 30 percent slopes.

Coast Range and Cascade Mountains (Huddleston, 1993). The geomorphic surfaces that occur in these areas are discussed in detail in the section “Formation of the Soils.” The soils that have developed on each geomorphic surface reflect unique combinations of parent material, age, and hydrologic features. Agricultural land use and landscape expression vary from one geomorphic surface to the next in a progression away from the Willamette River toward the mountains on both sides of the valley.

Immediately adjacent to the Willamette River and its tributaries is the annual flood plain. It consists of miscellaneous areas, such as Riverwash, and soils, such as the Camas series, that have a large amount of rock fragments and sand (fig. 19). These soils are extremely droughty in summer; thus, they have marginal potential for growing crops. They are used primarily as wildlife habitat and as a source of aggregate material for construction.

The first step in the landform sequence is the extensive flood plains of the Willamette River and its tributaries. Many of the best agricultural soils in the Willamette Valley are on this landform. These soils have the best combination of characteristics for agricultural production. They are very deep, well drained, permeable, and medium or coarse textured; are easy to work; respond well to

Figure 19.—Area of Riverwash along the Willamette River, representing the annual flood plain.

fertilizer; and require minimum input, such as installation of drainage systems or application of additional soil amendments. These soils are well suited to irrigation, and irrigation water is readily available in most areas. They support a very intensive agricultural industry. Irrigated row crops of all types are grown, including sweet corn, green beans, table beets, broccoli, cauliflower, carrots, pumpkins, and squash. Other row crops and specialty crops, such as a variety of berries, including strawberries and marionberries; cherries; filberts; and mint, are also grown on these soils. The wide diversity and high productivity of the soils are the hallmarks of this area for agricultural use (Huddleston, 1993). Irish Bend, Stahlbush Island, and Kiger Island are representative of this landform.

The frequency of flooding is frequent or occasional; however, since the flooding occurs in winter, it typically does not interfere with crop production. The coarser textured soils nearer the river, such as the Newberg series, are more susceptible to erosion by floodwater. Planting a winter cover crop helps to protect the soils.

The quality of the groundwater is an increasing concern in the Willamette Valley. The types of agricultural operations used on the soils on the flood plains include application of large amounts of fertilizer, pesticides, and irrigation water. To date, only a very few groundwater degradation events have occurred, all of which included nitrate nitrogen as the main contaminant. The soils on the flood plains are highly permeable and most are medium or coarse textured; thus, they are vulnerable to groundwater quality concerns. With the increasing agricultural use and management activities, monitoring of groundwater quality and more education on the potential for groundwater contamination are needed.

Two groups of alluvial soils are on the flood plains of streams that are tributary to the Willamette River and on the associated valleys. Both groups of soils have a higher content of clay in the subsoil as compared to the soils on the flood plains of the broad Willamette Valley floor. The better drained soils are the Abiqua, McAlpin, and McBee series. Because of the heavier texture of the subsoil and the more limited extent of these soils, they are not used for the diverse agricultural crop production as are the soils on the main valley floor. Production of winter wheat, hay and pasture, and some grass seed is the main agricultural use. The poorly drained soils in the tributary valleys include the Waldo, Wapato, and Bashaw series. Even if tile drains are installed, these soils are used mainly for grass seed production and for hay and pasture. Most areas of the Bashaw soils are used as unimproved pasture. Areas adjacent to Soap Creek, north of Corvallis, and Greasy Creek, southwest of Philomath, are representative of these surfaces.

The second step in the landform sequence is the young alluvial terraces. This surface is of substantial extent, especially in the southern part of the valley (fig. 20). It has three different landscape expressions and corresponding groups of soils. One landscape expression is in narrow, linear channels that represent old lakebeds. The unique soils are poorly drained and consist dominantly of organic material. Agriculture is devoted entirely to the production of onions. The second landscape expression is on terraces of the Santiam River, southeast of the city of Salem. The soils are gravelly, and use is dictated by the internal drainage of the soils. The well drained soils of the Salem series are used as intensively for agricultural crop production as are the well drained soils on flood plains. Root crops, such as carrots and beets, grow well in the loamy upper part of the Salem soils. The associated soils that have restricted drainage include the somewhat poorly drained soils of the Clackamas series and the poorly drained soils of the Courtney series. These soils can be improved with artificial drainage, but use is still limited to less intensive agricultural operations such production of cereal grain, hay, and grass seed. The third landscape expression is in the southern part of the Willamette Valley. The soils are fine textured, and they include the well drained soils of the Malabon series and the moderately well drained soils of the Coburg series. These soils have a clayey subsoil,

Figure 20.—Irrigated crop production in an area of Newberg and Cloquato soils on a flood plain (first landform step) in foreground and in an area of Salem soils on a young alluvial terrace (second landform step) in midground.

which limits the variety of agricultural crops that can be grown. If irrigated, the soils can be used for growing cereal grain, mint, grass seed, and several types of row crops. The alluvial terraces along Marys River, between Philomath and Corvallis, and southeast of Monroe, between the Long Tom River and State Highway 99W, are representative of this surface.

The next step in the landform sequence is the extensive main valley floor, which is comprised of two geomorphic surfaces. There is no distinct separation or age difference between these two surfaces; they differ mainly in stream dissection and relief. One geomorphic surface has very little stream incision and a poorly formed drainage network. The somewhat poorly drained soils of the Amity series and the poorly drained soils of the Dayton series are widespread on this surface. The nearly level fields adjacent to the Corvallis Airport are representative of this surface. The other geomorphic surface is near the area where the main valley floor transitions to lower surfaces or where streams are sufficiently incised to develop a well-formed drainage network. Typical soils on this surface are the well drained soils of the Willamette series and the moderately well drained soils of the Woodburn series. Most of the city of Corvallis is on this surface as is Oregon State University's Hyslop Farm, north of Corvallis.

The Dayton soils have a distinct clay layer that has high shrink-swell potential and very slow permeability. Water is perched above this layer, and the soil is saturated to the surface during much of the rainy season. Only perennial crops that can tolerate long periods of wetness in the root zone are adapted to this soil. The clay layer restricts effective artificial drainage, and the cost of the closely spaced tile lines needed is prohibitive for most farmers. Because of the lack of effective drainage, the

Dayton soils are slow to dry out in spring, which restricts growth of crops. Because both annual and perennial ryegrass can tolerate wetness, a major grass seed industry has been developed on the Dayton soils. Much of the ryegrass seed for both domestic and international markets is produced on these soils (Huddleston, 1993).

The Amity soils do not have a distinct clay layer, but they do have a seasonal high water table. These soils are more permeable; therefore, tile drainage is more effective. A much wider variety of crops can be grown on the Amity soils, including various kinds of grass seed such as ryegrass, fescue, and orchardgrass, cereal grain, and hay.

The Willamette and Woodburn soils are very deep and fertile, and they have a high available water capacity. The Woodburn soils have a fluctuating seasonal high water table at a greater depth in the profile, which is easily addressed with tile drains. Both of these soils are highly productive and have few limitations; therefore, they can support a wide diversity of intensive agricultural operations. Row crops for cannery processing are grown in irrigated areas. Winter wheat, alfalfa, and clover hay crops, seed crops, caneberries, and filberts are produced in nonirrigated areas. Additional agricultural operations include production of nursery stock for landscaping and forests and production of iris bulbs and Christmas trees (Huddleston, 1993).

The next step in the landform sequence is the dissected, old alluvial terraces and terrace remnants that are along the margins of some parts of the Willamette Valley. The moderately well drained soils of the Helvetia series are on this surface. Irrigation water generally is not available; therefore, most agriculture occurs as production of nonirrigated winter wheat, grass seed, and hay. A variety of other crops, such as wine grapes and filberts, can also be grown. Areas east of Adair Village, north of Logsden Ridge, and west of Independence Road are representative of this surface.

The next step in the landform sequence is an older, more dissected landform above the valley floor. Soils of the Wellsdale and Willakenzie series are representative of this landform. Soil depth is variable across much of the landform; however, many of the soils are moderately deep. Droughtiness is a common limitation. Irrigation water typically is not available, and agricultural use consists mainly of growing hay and pasture crops, with an increasing number of vineyards and Christmas tree plantations being established. Spring Hill, in North Albany, is representative of this surface.

The next-to-the-last landform step in the sequence is the much older, highly dissected hills above the main valley floor. These are the stable areas along both sides of the valley. The “red hill” soils, such as the Bellpine, Gelderman, Jory, and Nekia series, are in these areas. These soils have a clayey texture; however, the type of clay is such that only a minor amount of shrinking and swelling occurs. Infiltration, permeability, drainage, and aeration are all favorable for plant growth and management activities. McCloskey Ridge, between Dawson and Glenbrook; the area between Decker Ridge and Bunker Hill; and the area southwest of Monroe are representative of this surface.

Three very different types of agricultural operations have been developed on this surface. East of Salem, in an area known as Silverton Hills, winter wheat and grass seed crops, including fine fescue and bluegrass, are widely grown. In the margins of the valley, particularly on the Coast Range Mountains side, many thousands of acres have been developed into Christmas tree plantations (fig. 21). In 2003, Christmas trees were the fourth-ranked agricultural commodity by gross dollar sales in the state of Oregon and they were the leading commodity in many of the counties in the Willamette Valley (Oregon County and State Agricultural Estimates, 2004). Another major agricultural industry on the “red hill” soils is wine grape production. These soils are sought after for use as vineyards because of their favorable air drainage. The moderately deep soils of the Bellpine, Gelderman, and Nekia series are preferred because the limited available water capacity restricts growth of the grape vines and provides just enough moisture stress to produce high-quality fruit (Huddleston, 1993).

Figure 21.—Christmas tree plantation on a typical hill and foothill geomorphic surface.

The last step in the landform sequence is the steep and very steep, active, highly dissected slopes of the mountain ranges, well above the margins of the Willamette Valley. The soils on this landform have produced a large volume of timber on both public and private forestland, making Oregon the Nation's leader in wood fiber production for many years (fig. 22). For further information on forestland, see the "Forestland Productivity and Management" section.

The Oregon State University, Cooperative Extension Service, and associated Agricultural Experiment Stations have developed an extensive online library of videos and publications that address most of the frequently asked questions regarding management of various crops. In addition, the publications provide a more in-depth discussion of issues that growers need to take into consideration when producing crops. This library is available online at http://eesc.oregonstate.edu/agcomwebfile/EdMat/EdmatIndexAg.html.

Another excellent online reference is the Oregon Agricultural Information Network (OAIN). This database contains statistical data on the agricultural commodities of Oregon. Statistics cover harvested acreage, yields, production, average price, value of production, value of sales, and percent sold. The website is available online at http://oain.oregonstate.edu

General Management Considerations for Agricultural Crops

By Tom M. Gohlke, conservation agronomist, Natural Resources Conservation Service.

The majority of the soils that are used for crop production have a surface texture of loam, silt loam, or silty clay loam. These soils are susceptible to sheet, rill, and

Figure 22.—Highly productive forestland in the Coast Range Mountains. Caterl, Laderly, and Murtip soils are at higher elevations in foreground, and Hemcross, Formader, Klistan, and Harslow soils are at lower elevations in background.

ephemeral gully erosion caused by runoff. They also are subject to erosion from overland flow caused by flooding if the soil surface is left bare and unprotected in winter. Soils in the Willamette Valley, Alsea Valley, and Kings Valley that are subject to these conditions include the fine textured soils of the Awbrig, Bashaw, Conser, Verboort, and Waldo series, moderately fine textured soils of the Chehalis, McBee, and Wapato series, medium textured soils of the Chapman and Cloquato series, and moderately coarse textured and coarse textured soils of the Newberg, Camas, and Pilchuck series. Rarely flooded soils of the Abiqua, Alsea, Bashaw, Coburg, Malabon, and McAlpin series also are subject to erosion. Soils in the tributary river valleys of the Coast Range Mountains that are subject to flooding and erosion as a result of overland flow include the medium textured soils of the Kirkendall and Quosatana series and the moderately coarse textured soils of the Nekoma series. Maintaining permanent vegetative cover, leaving residue from the previous crop on the surface, or planting a cover crop provides protection in winter and reduces the potential for soil erosion from flooding and overland flow.

Soils that are on hills and are used for crops, such as the Bellpine, Chehalem, Dixonville, Dupee, Gelderman, Gellatly, Goodin, Helmick, Helvetia, Jory, Linslaw, Nekia, Santiam, Steiwer, Wellsdale, and Willakenzie series, are susceptible to sheet, rill, and ephemeral gully erosion in winter and early in spring. Practices that increase the potential for runoff and erosion include removing crop residue after harvest by excessive grazing, mechanical means, or burning and incorporating all residue into the soil by tilling.

Year-round management of crop residue to minimize runoff and erosion involves a system of conservation and management practices (fig. 23). The main goal is to leave as much plant material as possible on the soil surface at the beginning of the critical water erosion period. Using tillage operations that leave residue on the soil surface helps to maintain a protective cover that minimizes erosion. Nonselective herbicides can be used to control weeds and reduce the number of tillage operations needed.

Figure 23.—Grass straw residue management in an area of Amity silt loam, 0 to 3 percent slopes.

This practice limits the deep burial of residue and allows for more residue to be left on the soil surface after seeding crops such as winter wheat or fall-planted perennial ryegrass. The residue reduces soil particle detachment from the impact of rainfall and helps to filter out sediment as well as nutrients and pesticides that may be carried in runoff or attached to soil particles.

Additional conservation practices may be needed to reduce water erosion. In areas that have long slopes or where runoff water concentrates, structural practices such as construction of grassed waterways, diversions, or underground outlets may be needed. Other suitable practices may include tilling and planting on the contour, planting cover crops, or seeding to permanent grass in areas of steep, shallow soils.

Many of the soils that are used for crops are subject to compaction if farm machinery, vehicles, or livestock are allowed on the soils when they are wet. Soil compaction results in restricted permeability, a lower water intake rate, restricted root development, and increased runoff and erosion, all of which adversely affect productivity. Soil compaction can be minimized by changing the timing of tillage operations or the types of tillage tools used and by periodically adjusting the depth of tillage. Restricting tillage operations and traffic from equipment and livestock when the soils are wet helps to prevent or minimize compaction.

Organic matter from crop residue is an important source of nitrogen, phosphorus, potassium, and other nutrients needed by plants. It also maintains or increases the water infiltration rate, available water capacity, and soil tilth. Excessive tillage and burial of crop residue can result in a decrease in the content of organic matter and microorganisms. Keeping residue on or near the soil surface helps to maintain or improve the quality of the soil.

Soil drainage is a concern on both fine textured and coarse textured soils. A seasonal high water table can restrict the selection of suitable crops and management practices as well as reduce crop yields. Soils that have a seasonal high water table include the Alsea, Amity, Awbrig, Bashaw, Chehalem, Chismore, Coburg, Concord, Conser, Dayton, Dupee, Hazelair, Helmick, Helvetia, Holcomb, Linslaw, McAlpin, McBee, Panther, Pengra, Pyburn, Quosatana, Santiam, Treharne, Verboort,

Waldo, Wapato, Wasson, Wellsdale, Witham, Woodburn, and Zyzzug series. Imperfect drainage occurs primarily because of the topography and internal characteristics of soils. The shape of the natural landscape can direct the flow of water, causing it to concentrate in certain areas and saturate the soils for varying lengths of time. Unless the soils are artificially drained, the root zone may become waterlogged for long periods, reducing oxygen in the soils and thereby restricting root growth and plant production. A dense clay layer or other restrictive layer, which is in soils such as the Awbrig, Bashaw, Concord, Dayton, Hazelair, Helmick, Holcomb, Linslaw, Panther, Pengra, Pyburn, Santiam, and Verboort series, also restricts the movement of water. The result is a seasonal high water table, limited rooting depth, and reduced crop or forage yields.

Drainage can be improved by providing for surface (external) or subsurface (internal) removal of excess water. Surface drainage systems include diversions and open ditches and land shaping to eliminate depressional areas. Subsurface systems include pattern or interceptor tile drains (fig. 24). The effectiveness of drainage systems is restricted by a lack of outlets, shallow soil depth, and soil texture. If outlets are not available, excess water can be removed from the area only by pumping. Shallow soil depth increases installation costs. Drainage lines in fine textured soils need to be more closely spaced because of the restricted permeability of these soils, which also increases installation costs.

Irrigated crops and forage have traditionally accounted for a small percentage of the total cropped acreage. Typical irrigation methods include wheel-line, center-pivot, traveling gun, or solid set sprinkler systems (figs. 25, 26, and 27).

Important factors that influence the design and management of irrigation systems include the available water capacity, water intake rate, needs of the crop grown, and availability of water for irrigation. The available water capacity is the amount of water a soil can store for use by plants. It is determined by soil depth, soil texture, content of

Figure 24.—Installation of tile drainage lines in an area of Concord silt loam, 0 to 2 percent slopes.

Figure 25.—Center-pivot sprinkler irrigation system in an area of Chehalis silty clay loam, 0 to 3 percent slopes.

Figure 26.—Wheel-line sprinkler irrigation system in an area of Chapman loam, 0 to 3 percent slopes.

Figure 27.—Hand-line sprinkler irrigation system in an area of McAlpin silty clay loam, 0 to 3 percent slopes.

rock fragments, and content of organic matter. The water intake rate is determined by the soil texture, soil structure, and content of organic matter. Sandy soils absorb water rapidly and have a low available water capacity while clayey soils absorb water slowly and have a comparatively high available water capacity. Crops require water at critical periods for maximum quality and production. To maintain a desirable growth rate, adequate soil moisture must be available to crops. Irrigation systems need to be designed efficiently so that all of the water applied is used beneficially.

To maintain crop production and quality, a nutrient management program is needed. This includes use of crop residue (fig. 28), crop rotation, and application of inorganic or organic fertilizer to maintain, supplement, or replace the supply of elements required for plant nutrition.

Vegetable Production in the Willamette Valley

By Robert B. McReynolds, extension horticulturist, Oregon State University, North Willamette Research and Extension Center.

Unlike perennial crops that are planted once every few years, the majority of the vegetable crops produced in the Willamette Valley are planted annually. Fields must be prepared for seeding by plowing, disking, and rototilling. The valley commonly receives frequent, heavy rainfall late in winter and in spring and fall. Field preparation typically is done during this period; therefore, deep, well drained soils such as the Abiqua, Chapman, Chehalis, Cloquato, Malabon, and Newberg series are preferred for vegetable production. Soils characterized by good internal drainage do not retain as much moisture or hold it as long following rainfall as do those that have poor internal drainage. Because the soil structure facilitates drainage, these soils will

Figure 28.—Grass cover crop no-tilled into sweet corn stubble for protection from erosion in winter in an area of Willamette silt loam, 0 to 3 percent slopes.

tolerate field operations following periods of rainfall sooner than soils with poor drainage. Soils that are too wet cannot support the weight of tractors and implements, which can cause deep wheel ruts. In addition, wheel slippage impedes pulling field equipment through wet fields, rendering operations nearly impossible. Of even greater concern is the soil compaction that results from the operation of equipment when the soil moisture content is high enough to cause the collapse of the soil structure. Soil compaction occurs even in well drained soils, but it can cause long-term damage to poorly drained soils.

A less obvious problem with growing plants in poorly drained soils, such as the Bashaw, Waldo, and Wapato series, or in soils that hold a high amount of moisture, such as the Coburg, McAlpin, and McBee series, is the effect of soilborne pathogens on plant roots. All soils contain fungi and bacteria, many of which are plant pathogens. Soils with a high amount of moisture provide a more favorable environment for the movement of pathogens, increasing their ability to infect plant roots. The lack of aeration in the root zone when moisture occupies the spaces between soil particles also weakens the plants, making them more susceptible to infection by diseases.

The climate of the Willamette Valley is ideally suited for the production of cool-season vegetables. The weather is moderated by the Pacific Ocean; therefore, extremes in temperature are the exception rather than the norm. Although the summers can be very warm, the duration of very warm days is not optimal for the production of warm-season vegetables for competitive markets. The mild temperatures during the growing season are ideal for the slow maturation of crops. Some of the vegetables that have been successfully grown in the valley include brassicas, such as broccoli, cauliflower, cabbage (fig. 29), kale, collard, mustard greens (fig. 30), Napa cabbage, bok choy, Brussels sprouts, and various Asian

Figure 29.—Cabbage in an area of Woodburn silt loam, 0 to 3 percent slopes.

Figure 30.—Mustard greens in an area of Coburg silty clay loam, 0 to 3 percent slopes.

mustards; root crops, including potatoes; leafy greens; legumes, such as peas and beans (fig. 31); sweet corn (fig. 32); celery; peppers; summer and winter squash; cucumbers; rhubarb; alliums, such as garlic, elephant garlic, dry bulb onions, green onions, chives, shallots, and leeks; and many vegetable seed crops (fig. 33).

Vegetables produced in the valley are grown for fresh market sales and for processing into canned, frozen, or dehydrated products. For fresh market production, it is important to have produce available for sale as early as possible, to maintain steady availability in summer, and to continue production for as long as possible into fall. Vegetables produced for processing are planted and harvested on schedules designed to maintain a steady flow of produce for the processing facilities to optimize operations and to provide a desired marketing volume. Well drained soils are used for early- and late-season production when periods of rainfall are more frequent, and moderately well drained to somewhat poorly drained soils are used for midseason production when periods of rainfall are less frequent. Production on poorly drained soils is limited to the driest period in the growing season.

Beginning early in spring, fresh market vegetables, such as radishes, green onions, spinach, cabbage, cilantro, and other leafy greens that are tolerant of cool temperatures, are planted weekly. Other vegetables, such as lettuce, leafy brassicas, celery, dry bulb onions, turnips, rutabagas, parsnips, and carrots are planted as temperatures rise late in April and in May. Planting of many vegetables that have a short maturation period can continue throughout summer and into September. The objective of weekly plantings is to maintain a continuous supply for harvesting and marketing. Frost-sensitive vegetables, such as peppers, cucumbers, and squash, are planted in May through July. Garlic is planted late in summer for harvesting the following year.

The planting and harvesting schedules used for production of vegetables for

Figure 31.—Green beans in an area of Willamette silt loam, 0 to 3 percent slopes.

Figure 32.—Sweet corn in an area of Chehalis silty clay loam, 0 to 3 percent slopes.

Figure 33.—Sugar beets grown for seed in an area of Malabon silty clay loam, 0 to 3 percent slopes.

processing should take into account the critical growth factors such as soil temperature and growing degree days based on air temperature. Plantings should be scheduled according to the minimum growing threshold developed through the use of historical records. Rainfall in spring is the major obstacle in maintaining a schedule, because it restricts field preparation and planting. Therefore, the soils that have the best drainage should be scheduled for the earliest plantings. Most fresh market vegetables are harvested by hand, and most vegetables grown for processing are harvested by machine. At the time of harvesting, the soils need to be able to support the weight of the harvesters and the equipment used to harvest and haul the produce. Even the weight of mechanical-aided, hand-harvest equipment can compact the soil.

Regardless of the type of soil selected for vegetable production, soil compaction is unavoidable. To maintain yields, management should include practices that minimize compaction. Ideally, equipment should be kept off of fields when the soil is wet; however, the rainy conditions in the valley during most years make this uneconomical. Installing plastic drainage tubes 3 to 4 feet below the soil surface helps to accelerate the drying of the soils. Deep ripping or chisel plowing can break up the compacted soil layers to improve drainage. This is best accomplished in summer when the soil is dry and out of production.

Traditionally, vegetables grown in the valley are seeded or transplanted into flat ground, not into raised beds. The exceptions are garlic and potatoes. Because garlic is grown throughout winter when rainfall is heaviest, raised beds are used to drain water away from the plant roots and developing cloves. Potatoes are “hilled up” for tuber growth.

Supplemental sprinkler irrigation is necessary in most years, especially in summer. The frequency of irrigation depends on the length of dry periods and the available water capacity of the soil, but generally weekly applications are required.

Throughout the valley, vegetables are grown mainly on soils that have a land capability classification of 1. These soils have few limitations. Successful production is possible on soils that have a capability classification of 2 or 3 if good management practices are used. Applications of fertilizer and lime are needed to maintain a soil pH of 5.8 to 6.5. Rotating vegetable crops with cereal grain helps to reduce the buildup of soilborne pathogens specific to vegetables. Growing and incorporating green manure crops or planting cover crops improves soil fertility and increases the abundance of beneficial soil microorganisms. Minimum tillage can minimize the impact of heavy equipment on the soil and sustain the abundance of soil organisms beneficial to plant growth and development.

More detailed information on a wide variety of vegetable crops and related topics is available online at http://eesc.oregonstate.edu/agcomwebfile/EdMat/EdmatIndexAg.html and http://oregonstate.edu/dept/NWREC/.

Berry Crops

By Bernadine Strik, extension horticulturist, Oregon State University, Agricultural Experiment Station.

A wide variety of berry crops are grown in Oregon. In 2003, the berries grown and the corresponding harvested acres were trailing blackberries, including marionberry, boysenberry, thornless evergreen berry, and others, 7,860 acres; strawberries, 2,600 acres; blueberries, 3,000 acres; red raspberries, 2,300 acres; gooseberries and currants, estimated at 200 acres; and kiwifruit, 100 acres. Most of these crops are grown in the Willamette Valley; however, some commercial acreage is in Hood River, Douglas, Jackson, Coos, Curry, and Josephine Counties.

The first steps in evaluating whether a berry crop is suitable to a local area or region are to determine the potential market for the fruit, the soil and site

requirements, and the potential economic return. The following discussion provides some general information on crop requirements and cultural considerations. Specific information is provided for individual berry crops that have specific requirements. More detailed information on planting density, trellis types, pest management, cultivars, and other topics is available online at http://eesc.orst.edu/agcomwebfile/EdMat/EdmatIndexAg.html, http://berrygrape.oregonstate.edu/, and http://www.nwsmallfruits.org/.

Berries grow well in nearly level to gently sloping areas if the landscape is not too steep for cultural management and other site requirements are met. Certain trailing blackberries, particularly marionberry, are sensitive to injury from the cold temperatures in winter. Hardiness to the cold temperatures varies depending on the stage of dormancy. Critical temperatures of 8 to 22 degrees F cause cane or bud damage and thus loss of crop production the subsequent season. Areas such as those on flood plains and stream terraces near the Willamette River and those on hills have good air drainage, which can minimize the effect of the cold temperatures.

In general, berry crops should be planted in well drained, deeper soils. Most berry crops do not perform well in areas of soils on hills that are less than 2 feet deep to bedrock or another restrictive layer, such as a claypan. Examples are soils of the Bellpine, Chehulpum, Steiwer, and Willakenzie series. Blackberries can tolerate a fluctuating water table within the root zone at some time during the growing season, but yields may be reduced. All berry crops except blueberries grow best in soils that have a pH of 5.6 to 6.5. In contrast, blueberries are acid-loving plants and should be planted in well drained soils that have a pH of 4.2 to 5.5. For blueberry production, organic matter, typically sawdust, is incorporated into the soil prior to planting. Use of raised beds to improve drainage of the root zone is also a common practice for blueberries. Raised beds (about 12 inches high) are also recommended for the establishment of strawberries, raspberries, and kiwifruit to minimize the risk of root rot.

Berry crops require irrigation during the growing season for optimal growth and production. Overhead irrigation for frost protection is required for many berry crops in colder areas, kiwifruit after bud break (late in February through early in March), and strawberries and blueberries during bloom (May). In general, weekly applications of 1.5 to 2.0 inches of irrigation water are required during the growing season when rainfall is inadequate, depending on the crop grown and weather conditions. Overhead irrigation systems commonly used are moveable sprinkler systems, such as hand lines or traveling guns used for strawberries and caneberries, and permanent sprinkler systems, such as solid sets or buried lines used for blueberries and kiwifruit (fig. 34). Drip irrigation systems are being installed in some of the most recently established blueberry fields. Water quality is important, particularly for drip systems because of the potential for clogging of emitters and in areas of blueberries because of their sensitivity to chloride. Chloride concentrations of more than 300 parts per million can damage the crop and reduce yields.

Strawberries, red raspberries, kiwifruit, gooseberries, and currants are most commonly established in spring (April) using rooted plants. Container-grown blueberry plants are most commonly planted in fall (October) or in spring. Blackberries and black raspberries are most commonly established in spring using tissue-cultured plants. Unless there is adequate rainfall, irrigation is needed immediately after planting. Trellises, which are needed for the production of black and red raspberries, kiwifruit, and blackberries, commonly are installed after planting.

Choice of cultivar, or variety, is critical. Within the berry crops, there are many cultivars from which to choose. Each differs in yield, quality, market desirability, and other factors. Choice depends on the target market and suitability for a given site. More than one type of berry crop or cultivar within a berry crop should be grown in

Figure 34.—Blueberries irrigated with a buried pipeline sprinkler system in an area of Willamette silt loam, 0 to 3 percent slopes.

case one does not grow well in a given year or to cross pollinate for maximum yield and berry size, such as with blueberries.

Generally, all of the berry crops require applications of soil amendments such as fertilizer, typically nitrogen, phosphorus, potassium, and boron, along with herbicides and other pesticides as needed for disease and insect management.

Strawberries, red and black raspberries, blackberries, gooseberries, and currants commonly are grown without growing cover crops between the rows. In gently sloping areas, however, soil erosion in winter can be minimized by planting a permanent cover crop, such as sod, in areas of caneberries, gooseberries, and currants; planting a temporary cover crop, such as oats; or planting the berry crop on the contour (fig. 35).

Targeting markets is difficult, yet critical. Some berry crops have a long establishment period, and it is difficult to predict the market several years in advance. The establishment period of berry crops, from planting to mature crop, is 8 years for blueberries, 7 years for kiwifruit, 3 years for raspberries and blackberries, and 2 years for strawberries. Most of these crops have immature yields during the establishment period. Ninety to ninety-five percent of the strawberry, raspberry, and blackberry crops are grown for processing. Fruit is picked at optimum maturity and is transported to a local processing plant. Most of the processing plants are in the Willamette Valley, which can limit commercial production of berry crops for markets in more distant areas of the state. More than 50 percent of the blueberries and 90 percent of the hardy kiwifruit are marketed fresh.

Market prices for fruit for processing are highly volatile because they are directly

Figure 35.—Strawberries planted on the contour to control erosion in winter in an area of Santiam silt loam, 2 to 8 percent slopes.

affected by supply and demand. Also, demand commonly is affected by price. If the price is too high, demand drops and manufacturers try to locate a cheaper supply of fruit (other cultivars from other areas or countries or another berry crop that is less expensive). Supply can be greatly affected by cold weather. Crops such as marionberry are very susceptible to injury from the cold temperatures in winter. The State production of marionberry has ranged from about 7 million to 34 million pounds with the price ranging from 25 to 80 cents per pound, depending on supply.

Market prices for fresh fruit are less volatile; however, finding a buyer is more difficult. Although there are a number of up-pick farms in the Willamette Valley, they make up a relatively small percentage of the total acreage. Most of the fresh market fruit is hand picked and taken to one of several major shippers. Fresh fruit merchants have very specific quality requirements for berry crops and other fruit to ensure good shipping and end-market salability. For more information, contact the local office of the Oregon State University, Cooperative Extension Service.

Essentially all of the strawberries and hardy kiwifruit is harvested by hand. Most of the laborers are experienced agricultural workers. Growers either house their own labor crew or use labor contractors. Several factors, including government regulations and immigration reform, have reduced the availability of suitable labor. In addition, recent increases in the minimum wage have greatly increased the cost of harvesting by hand.

Raspberries, blackberries, and blueberries for fresh market are hand picked every 4 to 7 days, depending on the crop and weather. For processing markets, harvesting by machine is very common. Over-the-row machine harvesters are used, which are specifically designed for multiple harvests of berry crops (fig. 36). Harvesting berries by machine costs less per pound and typically produces a higher quality fruit (better color and flavor) unless contaminants, such as insects or debris, are introduced during harvesting.

Yields per acre vary widely by crop. Within a crop, yields vary by planting age,

Figure 36.—Mechanical harvesting of raspberries in an area of Willakenzie loam, 2 to 12 percent slopes.

environmental conditions, and cultural practices. Relative yields in tons per acre for mature plantings are 5 to 12 tons for strawberries, 3 to 9 tons for red raspberries, 1 to 3 tons for black raspberries, 4 to 9 tons for trailing blackberries, 3 to 5 tons for erect blackberries, 8 to 18 tons for semierect blackberries, 7 to 18 tons for blueberries, and 4 to 13 tons for kiwifruit. The ranges reflect planting age, cultural differences, cultivar differences, and harvesting methods. The typical life of a planting is 4 years for strawberries, 5 to 7 years for black raspberries, 20 to 25 years for blackberries, 15 to 20 years for red raspberries, and more than 25 years for kiwifruit and blueberries.

Nursery Crops in the Willamette Valley

By Richard Regan, extension horticulturist, Oregon State University, North Willamette Research and Extension Center.

Nursery Industry

Oregon nurseries have prospered since the 1980’s, increasing at about twice the rate as that of the National nursery industry. During the 1990’s, the industry benefited from a strong construction market, rising household income, and growing interest in landscape aesthetics and environmental enrichment. The industry has solidified its place in the economy of Oregon by becoming the top-ranking agricultural industry, based on farm gate value (NASS, 2003-2004b). The total acreage of nursery and greenhouse crops in 2001 was estimated at 45,200 acres (NASS, 2003-2004a). Most of the production is in the five northern Willamette Valley counties—Clackamas, Marion, Washington, Yamhill, and Multnomah. The features that distinguish this part of the valley are the moderate climate, productive soils, availability of sufficient water,

and good interstate highway system. About 80 percent of Oregon-grown nursery products are shipped out of state, accounting for 11 percent of the National market (NASS, 2003). The ability to sustain markets, availability of labor, environmental concerns, and increasing urbanization of the Willamette Valley are the primary concerns for continued expansion and profitability of the nursery industry.

Oregon nurseries are quite diverse in the types of crops grown and methods of production. Operations vary greatly in size, from more than 1,000 acres to a quarter of an acre. The production strategies of nurseries are diverse as well, producing over 10,000 different plant cultivars, or varieties, in fields or containers. While Oregon is the leading state in the production of bare-root shade and flowering trees, the production of container-grown plants has also increased tremendously. Forecasting sales of nursery stock is almost entirely speculative. Growers face the difficult challenge of adjusting the volume of production and product line several years in advance. Most nurseries use a mix of production systems that are suited to the mix of plants they intend to sell. Nursery crops are planted and harvested on an annual basis, with a production cycle that generally ranges from 3 to 5 years.

Soil Considerations and Production Systems

Nursery plants are best suited to deep, fertile soils that are well drained, such as Willamette silt loam. Since nurseries sell whole, live plants, the root system must be well developed. Soils that restrict root growth should be avoided. A rooting depth of 30 to 36 inches is considered the minimum for most nursery crops and production systems. Well drained soils provide for better planting in spring and harvesting in fall, and they are essential for managing soilborne diseases. Soil pH required by woody plants varies from acid-tolerant plants, such as rhododendron and maple, to those that favor more neutral soils, such as pine and oak. Gently sloping areas (2 to 4 percent slopes) are best since they provide good airflow and surface water drainage, which are important for prevention of disease and protection from cold. The area should not be prone to flooding. Drainage can be improved by the installation of surface conveyance systems and subsurface drainage tiles. Irrigation is necessary for most crops grown in the nurseries in Oregon. The permeability of the soil should be moderate or better, and the available water capacity should be at least 7 to 8 inches. In field production, the nursery stock is grown in rows and typical agricultural operations and equipment are used.

Bare-root crop production

Woody trees and shrubs are grown in fields and dug without attached soil in fall through winter for shipment. They are stored under cool, moist conditions to keep them dormant and are shipped late in winter or early in spring. The preferred soils for bare-root production generally are the Chapman, Newberg, Cloquato, Willamette, Woodburn, and Chehalis series. These soils have sufficient sand to slough readily from the roots during harvest, unless they are too wet. They also have enough silt and clay to encourage development of well-branched root systems with an abundance of fine roots.

Balled and burlapped crop production

These crops are grown under field conditions and dug with the soil mass attached. The soil/root ball is covered with heavy burlap to keep it together during shipment and until sale. Similar soil types are used for balled and burlapped crop production as are used for bare-root crop production, except that a slightly higher clay content is desirable to keep the harvested root ball together. Generally, too much clay (more than 30 to 35 percent) is undesirable because the soil ball tends to shrink and crack when it dries and cultivation is more difficult.

Container crop production

Plants are grown in plastic containers, using a “soilless mix” that commonly is

made up of bark or peat moss. Containers are placed on a graveled bed and grown there until sold. Container production offers several advantages over field production. The light weight of containerized plants facilitates loading and shipping. Use of tailwater return systems conserves moisture, decreases runoff of excess nutrients, chemicals, and sediment during storms in summer and winter, and prevents water pollution by nutrient leaching. These systems are designed to include ponds that collect and hold topsoil until it can be put back onto the field. This limits the amount of sediment moving off the field and into roadside ditches, canals, and natural sloughs. Water costs are greatly reduced if the ponds are equipped with a pump and return system that recycles water to the head of the field for reuse. Soils that have a heavier subsoil texture, such as the Concord, Dayton, Coburg, and McAlpin series, are well suited to container production. These soils can be graded and compacted to facilitate surface runoff of irrigation water to collection ponds.

Pot-in-pot crop production

This recently introduced system is a hybrid of field and container production that is growing in popularity. A permanent container is embedded into the ground and a container-grown plant is placed in it. This system provides some of the advantages of container production, but the roots also are naturally protected from freezing and the containers do not tip over in the wind. Well drained soils, such as the Abiqua, Malabon, and Willamette series, are needed for successful pot-in-pot production. Nonetheless, a common practice is to run a tile drain under each row of plants. Care must be taken to keep the plant roots from growing through the drain holes of the embedded container and into the soil.

Cut foliage and flower production

Cut foliage, such as English holly, is grown under permanent orchardlike field conditions. Holly orchards commonly are on well drained soils, such as the Jory, Bellpine, and Nekia series, and generally are not irrigated. Field-grown cut flowers can be either annuals or perennials. They require excellent drainage and are grown similarly to row crops.

Greenhouse crop production

Greenhouses are used to propagate woody plants and to grow bedding plants, hanging baskets, and other floriculture crops. Cut flowers also are grown in greenhouses. The main soil concerns for a greenhouse operation are related to structural engineering characteristics and the potential for flooding.

Management of Soils Used for Nurseries

A major challenge in field production of nursery stock is maintaining soil productivity through repeated production cycles. Frequent tillage and equipment traffic increases the risk of compaction and reduces the organic matter content of the soil. The organic matter content should be maintained at 4 to 6 percent. Using green manure crops and/or bulk organic amendments, including Douglas-fir bark and sawdust, compost, and manure, help to accomplish this. Harvesting the nursery stock during the rainy season damages the structure of the soil, thus subjecting the land to a greater potential for soil erosion. Site-specific soil conservation practices should be used to reduce the environmental impact. Some of these practices include planting on the contour, using minimum tillage, using extensive cover crops, planting and maintaining buffer strips, and managing surface water movement.

Maintaining tilth is an important consideration when developing a crop production schedule. While some planting is done in fall, the majority of nursery crops are planted in spring when soil conditions commonly are less than optimal for effective use of most implements and equipment. In nursery systems, only a small amount of crop residue can be returned to the soil after harvest. These factors combined with harvesting in winter, tend to weaken the soil structure unless a cover crop or green

manure crop is included in the rotation. Continuous use of fields in a nursery management system tends to deplete available soil nutrients and increases the potential for damage to the soil. To minimize these negative impacts, summer and winter cover crops should be grown for 1 or 2 years after harvesting. In addition, cover crops can be grown in any open spaces created by harvesting partial plant blocks. Use of cover crops in the rotation increases the total amount of land needed for the nursery, thus increasing the cost of production. Incorporation of bulk organic matter can be effective if the carbon-to-nitrogen ratio is maintained at about 25 to 1.

While a tillage pan can form in most of the soils in the Willamette Valley used for nursery crops, certain soils such as the Cloquato, Willamette, Chehalis, and Malabon series are prone to this problem. A tillage pan usually forms within the upper 12 inches of the soil as a result of repeated cultivation for weed control and routine use of equipment. Farming practices used to grow bare-root shade and flowering trees can include as many as 25 passes by equipment through a field each year. The resulting compaction inhibits root growth and restricts water movement. Periodic, shallow subsoiling (single chisel) between rows during the growing season can help to alleviate this condition if it is done when the soil is relatively dry. Practices that can help to prevent the formation of a tillage pan include avoiding cultivation when the soil is wet, keeping equipment traffic to a minimum, using equipment only when the soil is dry, establishing perennial cover crops, and deep subsoiling late in summer.

Excessive soil wetness is a key limiting factor for the production of high-quality nursery plants. While compaction and soil tilth affect soil drainage, the soils in the Willamette Valley inherently have a seasonal high water table. Soils that develop a water table within 36 inches of the soil surface should be tile drained if a suitable outlet is available. Unless drained, wetness of soils such as the Amity, Coburg, and Woodburn series tends to restrict root growth and complicates planting and harvesting of the crop. High-value nursery crops commonly require more closely spaced tile drains than do most other agricultural crops. Poor soil drainage commonly is associated with the major diseases of nursery crops, especially Phytophthora root rot and stem blight.

More specific information on nursery crops and related topics is available online at http://eesc.orst.edu/agcomwebfile/EdMat/EdmatIndexAg.html and http://oregonstate.edu/dept/NWREC/.

Grass Seed and Small Grain in the Willamette Valley

By Mark E. Mellbye and Gale A. Gingrich, extension horticulturist, Oregon State University, Agricultural Experiment Station.

Field crops, such as grass and legume seed (fig. 37), and small grain, such as wheat and oats, comprise the largest acreage of the crops grown in the Willamette Valley. The majority is nonirrigated, except areas of grass seed grown on recent alluvial flood plains, where irrigation also is required for row crops and peppermint.

Internationally, the Willamette Valley is a center of cool-season grass seed production. It is recognized as a consistent and reliable source of quality forage and turf seed. Grass grown for seed once was considered an alternate crop for poorly drained soils, but it is now the dominant crop grown on the valley floor.

Historically, the most important nonirrigated crop grown in western Oregon was winter wheat. Wheat and other small grain, such as oats, are still grown as cash crops or rotation crops; however, more than one-half of the acreage once under small grain production is now under grass seed production.

Similar equipment is used in the production and harvest of both small grain and grass seed crops (fig. 38). More intensive planting strategies and management is required for small-seeded grass and legume seed crops, especially the perennial species, because of the need to control weeds and pests, the cost to clean the seed,

Figure 37.—Field of clover ready for harvest in an area of Salem gravelly silt loam, 0 to 3 percent slopes.

Figure 38.—Combine harvesting of grass seed in an area of Amity silt loam, 0 to 3 percent slopes.

and the need to meet market certification and/or other specifications. Small grain crops are less tolerant of wetness and low soil pH. Grass seed crops, such as annual and perennial ryegrass and tall fescue, tolerate a broad range of soil properties, particularly poorer soil drainage conditions, as compared to wheat and most other field and horticultural crops. Nonirrigated grass seed has grown well on the broad, main valley floor in areas of poorly drained or somewhat poorly drained soils, such as the Dayton, Amity, and Concord series.

Although open field burning was once a common management practice, only a small percentage of the acreage used for grass seed production is now managed by burning (fig. 39). Under current management practices, straw is either baled and then removed from the field or it is flail-chopped in place. Leaving straw in the field helps to recycle nutrients, serves as a mulch to conserve moisture in fall, helps to prevent wind and water erosion, suppresses certain weeds, and may contribute to soil tilth.

Grass seed crops are grown on a variety of soil types under both nonirrigated and irrigated conditions. In general, well drained soils, such as the Willamette, Chehalis, and Malabon series, are more productive than are poorly drained soils, such as the Dayton, Conser, and Bashaw series. Poorly drained soils are not suited to perennial grass production because water ponds on the soil surface. Good to excellent yields of grass seed crops can be grown on the wetter soils if proper management is used. Using both surface ditches and subsoil tiles to improve drainage, field shaping, and

Figure 39.—Aftermath of field burning in an area of Jory silty clay loam, 2 to 12 percent slopes.

liming to improve soil pH have resulted in a dramatic increase in grass seed yields on poorly drained soils.

Five major types of grass seed crops are grown—perennial ryegrass, annual ryegrass, tall fescue, orchardgrass, and bentgrass. The most widely grown is perennial ryegrass. Most of these species can be grown successfully on poorly drained soils. The exception is orchardgrass, which requires at least moderately well drained soils, such as the Coburg and McAlpin series, for reliable seed production. Creeping bentgrass is grown under irrigation. The other species commonly are grown on the heavier textured soils without irrigation. Irrigation is needed on somewhat excessively drained soils with low available water capacity, such as the Newberg series, to achieve acceptable yields in most years and to maintain stands following harvest.

Perennial ryegrass is grown for turf or forage seed over a broad range of soil conditions and landscape positions in western Oregon. In the northern part of the Willamette Valley, the acreage of grass seed is concentrated on the valley floor, where it commonly is grown in rotation with other crops, such as vegetables for processing, cereal grain, legumes, and specialty seed crops. Some of the acreage is used for long-term grass seed production.

The majority of the acreage is on soils such as the Amity, Woodburn, and Willamette series. Most of the fields have some relief that provides for drainage, but many have been pattern tiled to improve surface and internal drainage. In recent years, perennial ryegrass for seed has been grown on other soil types. This includes both the soils on the alluvial river bottoms along the Willamette and Santiam Rivers as well as some of the gently sloping to steep soils on hills along the eastern and western parts of the valley.

Soils on flood plains tend to be well drained to excessively drained; thus, in many years supplemental irrigation is needed to optimize yields. Soils on flood plains include the Chehalis, Cloquato, and Newberg series as well as small areas of the Chapman and Pilchuck series. Since these soils commonly are excessively drained, irrigation is needed for best results.

Soils such as the Jory, Gelderman, and Nekia series commonly are on hills along the margins of the eastern part of the valley. Along the margins of the western part are soils such as the Goodin, Hazelair, Helmick, Steiwer, Santiam, Wellsdale series. The soils may be relatively shallow, and basalt outcroppings can make tillage difficult. Proper tillage and planting practices are critical to protect the steep slopes from erosion, especially during seeding in fall and during the seedling stage. On the margins of the eastern part of the valley, fields can be at an elevation of as high as 1,000 feet and rainfall can be 50 percent higher than that of the valley floor. Three types of fine fescue—chewings fescue, red fescue, and hard fescue—typically are grown for turf seed on the soils on hills in the Willamette Valley.

The yield of grass seed varies widely depending on species and variety. The major species and typical yields, in pounds of clean seed per acre, are annual ryegrass, 1,850 pounds; perennial ryegrass, 1,300 pounds; tall fescue, 1,400 pounds; and orchardgrass, 900 pounds. Yearly summaries of individual crop yields, acreages, and prices can be obtained from the local office of the Oregon State University, Cooperative Extension Service (Oregon County and State Agricultural Estimates, 2004; NASS, 2003-2004b) or online at http://oain.oregonstate.edu).

Practices from seedbed preparation (fig. 40) to harvest must be performed in an appropriate and timely manner for optimum annual yields of ryegrass seed. Fertilizer cannot make up for uncontrolled insects, diseases, and weeds. Excessive stand density, low soil pH, and/or poor drainage can significantly limit yields.

The most common small grain crops grown are winter and spring wheat and spring

Figure 40.—Seedbed preparation with an offset disk implement for fall planting in an area of Chehalem silty clay loam, 0 to 3 percent slopes.

oats (fig. 41). Soft white wheat is the market class produced, and it is grown principally for export. Spring oats is grown for either hay or grain, and it generally is somewhat more tolerant of wetness and low soil pH. Winter wheat is poorly adapted to wet soils, but it can be grown successfully in areas once considered marginal for wheat if practices such as improving drainage, providing good soil fertility, and liming to achieve a soil pH of 5.5 or higher are used. Use of no-till or direct-seed plantings in fields that have been sprayed but not cultivated helps to successfully produce wheat on marginal soils. Yields for winter wheat are 85 to 140 bushels per acre if grown in rotation with other crops.

A good fertilizer program is needed to produce high yields of small grain and grass seed. The soils typically are low in available nitrogen, the major limiting nutrient in crop production. Annual applications of nitrogen fertilizer are needed. Efficient use of nitrogen fertilizer is critical not only for economic crop production but also to prevent contamination of groundwater and surface water. Nitrogen fertilizer is water soluble and mobile in the soil profile; therefore, if it is not used by the crop it is likely to be lost in the environment. Properly timing applications to coincide with plant use is essential.

The process of mineralization, which is the breakdown of soil organic matter and release of available nitrogen, provides a significant portion of the nitrogen needed for crops. A special soil test (anaerobic incubation) can be used to predict mineralization. This is useful in determining the proper rate of application of nitrogen fertilizer in spring for winter wheat production (Christensen and others, 2003). In most years, grass seed crops respond to an annual application of nitrogen fertilizer in spring that provides 90 to 180 pounds of actual nitrogen per acre, depending on the species grown and soil type. Generally, poorly drained soils that are high in organic matter content, such as the Bashaw series, require less nitrogen fertilizer than do well drained soils. Application of 30 to 40 pounds of nitrogen in fall is also recommended to promote regrowth and reproductive tiller development of perennial species or to establish new stands.

For grass seed crops, nitrogen fertilizer should be applied late in February through

Figure 41.—Spring oats in an area of Coburg silty clay loam, 0 to 3 percent slopes.

the end of April. To prevent loss of fertilizer by runoff, delay application until no standing water remains on the field. Nitrogen fertilizer should be applied to wheat crops before the onset of stem elongation, which is early in March for winter wheat. Nitrogen can be applied in a single application or in multiple applications for both grass seed and grain crops (http://eesc.orst.edu/agcomwebfile/edmat/EM8854-E.pdf). Multiple applications of nitrogen help to ensure uniform coverage and allow for greater flexibility during the rainy period in spring. The advantages of multiple applications should be weighed against higher cost for equipment and labor and the potential for soil compaction with additional equipment use.

Other fertilizer nutrients commonly needed by grass seed and small grain crops include sulfur, phosphorus, potassium, and to a lesser degree, calcium and magnesium. Soils in the Willamette Valley acidify over time, especially if they are used for crops; thus, applications of lime are needed. There can be considerable variation in soil pH and nutrient status between fields, depending on the soil type and fertilization practices used. These variations can also exist within a field if it consists of different soil types. If variable rate application is feasible, grid sampling can help to target the application of nutrients and lime to the portions of a field where they are most needed. Soil tests for pH and the content of phosphorus, potassium, calcium, and magnesium should be used to determine the need for lime or fertilizer. A soil test is not used for sulfur; however, soils in the Willamette Valley are known to be low in this nutrient. Sulfur should be applied annually at a rate of 10 to 20 pounds per acre. For more information on the use of fertilizer or for specific recommendations for fertilizer rates and soil testing, refer to the fertilizer and nutrient management guides available online at http://eesc.orst.edu/agcomwebfile/EdMat/EdmatIndexAg.html.

Viticulture in the Willamette Valley

By Anne Connelly, viticulturist, Oregon State University, Agricultural Experiment Station.

Viticulture is the cultivation or culture of grapes, especially for use in making wine. In the Willamette Valley, it dominantly consists of wine grape production on soils, such as those of the Bellpine, Jory, Nekia, Wellsdale, and Willakenzie series, on the western hillslopes facing the valley floor. Some wine and table grape production occurs on soils, such as those of the Willamette and Woodburn series, at the lower elevations of the main valley floor. While the hillsides provide good air drainage for frost control, frosts do occur in spring and fall on the valley floor. Selecting a vineyard site that is frost-free between April 1 and October 25 is critical. Because of the maritime influence of the Pacific Ocean and the latitude of Oregon in the Northern Hemisphere, producers of reserve wines (higher valued wines) need to thin the fruit in order for it to ripen successfully. A higher number of heat units occurs on most hillslope sites as compared to those on the valley floor, which helps to expedite the ripening process. While the physical and chemical properties of the soils on hillslopes vary tremendously, the typical soil profile is silty clay loam or clay loam of varying depths. Some soils may have a silt loam or loam surface layer or a seasonal high water table of short duration in the lower layers. The majority of the variability in the physical and chemical properties of the soils is directly related to the processes of formation and the parent material in which the soils formed. Although not scientifically proven, soils derived from basalt or sandstone are thought to provide specific flavor and aroma characteristics in wine. Each soil type in the Willamette Valley provides unique characteristics for production of Pinot noir grapes and related varieties. Recognizing the variability of the soils helps in selecting a vineyard site and in determining the kinds of rootstock to plant and the irrigation methods to use. The depth and available water capacity of the Jory and Willakenzie soils are examples of soil properties that can vary within small areas. Thoroughly surveying the soils before determining management strategies helps to mitigate the high cost of establishing and producing fruit on large vineyards on hillsides.

Isolating differences in soils within vineyard blocks (individual plantings of grapes in a single year) before planting can help in determining the layout of the vineyard. The number and length of rows and the plant material (rootstock/scion combination) may vary according to soil differences. A scion is a woody stem or small section of a tree or shrub used to propagate a new plant by grafting on a rootstock. The scion holds the characteristics of the new plant, and the rootstock enables it to grow quickly.

The oak woodland habitat, which is dominant on the hillsides surrounding the Willamette Valley, should be considered when establishing vineyards (fig. 42). Maintaining ecological boundaries and corridors within the vineyard that include native vegetation provide habitat in winter for beneficial species such as *Typhlodromus pyri*, a predator mite that feeds on spider mites, which are harmful to wine grapes. Oak woodland habitat also provides ecological niches for a wider variety of mammals and birds. An ecological approach to vineyard development enhances and protects the landscape for the future. Current pest management information for wine grapes in Oregon is available online at http://eesc.orst.edu/agcomwebfile/edmat/EM8413.pdf.

Depth, texture, and available water capacity of the soils on hillsides influence the choice of rootstock used when grafting European wine grape varieties onto American varieties. Development of a rootstock that is resistant to *Phylloxera spp.*, a root louse native to North America that feeds on European wine grape varieties, has been a century-long goal for breeders of wine grape plants. Grafting susceptible but desirable European scion varieties onto selected resistant American species is common. Grafted plants provide desirable characteristics such as better plant vigor and

Figure 42.—Oak woodland habitat in an area of Coburg silty clay loam, rarely flooded, 0 to 3 percent slopes.

maturity of fruit. Rootstock should be matched to specific soil types. Onsite investigation is needed, especially for analysis of soil nutrients, soil depth, and available water capacity.

When matching plant material to a given site, the harvest tonnage and quality of wine desired should also be considered. A different rootstock may be required for reserve wine production than for table wine production. The pounds of fruit per vine and vine vigor are influenced by the rootstock/scion plant material and the characteristics of the soils in a vineyard block.

Many table wine producers have planted vigorous rootstock with wider spacing in order to divide the vine canopy. Dividing the canopy on a trellis system and using two fruiting wires, instead of one, increases the yields per acre. A wide variety of specific information on wine grape production is available online at http://eesc.oregonstate.edu/agcomwebfile/EdMat/EdmatIndexAg.html and http://berrygrape.oregonstate.edu/.

In contrast, reserve-quality wine grapes in the Willamette Valley generally are grown on less vigorous rootstock planted with closer spacing. A single fruiting wire is used, and the vine is trained to grow vertically during the growing season. Reserve-quality fruit can also be grown in a divided canopy, but the fruit is heavily thinned during the growing season.

The fruit ripens exceptionally well in vineyards on the valley hillslopes and on the foothills along the eastern margin of the Coast Range Mountains, which have south, southeast, east, west, and southwest aspects toward the Willamette Valley, and in the broader tributary river valleys west of the Willamette Valley, such as Kings Valley (fig. 43). Cool-climate varieties, such as Pinot noir and related varieties, are grown in vineyards at an elevation of 400 to 850 feet, which have the necessary heat units for high-quality production. Frosts can occur in spring and fall in vineyards at an elevation of less than 400 feet, and ripening of the fruit is restricted in some years in vineyards at an elevation of more than 850 feet. Narrow tributary valleys leading into the Coast Range are also subject to frosts.

In general, the hillsides that face the main valley floor are highly suitable for wine grape production. Site selection is the most important aspect of successful wine

Figure 43.—Vineyard in an area of Wellsdale-Willakenzie-Dupee complex, 2 to 12 percent slopes.

grape production. Once a site has been located, an extensive onsite investigation of a given vineyard is recommended to identify the soils and their physical and chemical properties. Soils of the Jory and Willakenzie series are examples of those that support grape vines, but plant material selection may vary. Soil depth, texture, and available water capacity should be considered when matching plant material to a site. Vineyard objectives, such as the quality of wine desired, should also be deter mined before selecting the grafted plant material. Rootstock selection, scion selection, plant density, and training system will vary, depending on the choice to produce reserve-quality wine or table wine.

Production of varieties such as Pinot noir, Pinot gris, and Pinot blanc is well suited to the Willamette Valley. Preparation before planting may include adjusting soil pH and amending nutrient deficiencies. Sustainable vineyard management practices used in Oregon encourage judicious use of herbicides. Within-row weed control is needed, and it can be achieved by using herbicides or mechanical in-row weed devices. Drip irrigation may be needed on moderately deep soils, such as those of the Bellpine and Willakenzie series, if grafted vines exhibit signs of stress in summer. This is particularly true for soils that have bedrock at a depth of 24 inches or less. Application of water during the growing season in summer is important for plant establishment. If properly planned, many vineyards do not need to be irrigated after vines have been established. If drip irrigation is used, techniques such as deficit irrigation and partial root zone drying can help to conserve water. Harvest methods generally include hand

labor from late in September through late in October, when fruit has reached optimal maturity. Harvesting can occur during the rainy period in fall in some years. On hillside vineyards, loss of topsoil as a result of erosion and compaction can be minimized during harvest if permanent ground cover is established between at least every other row. Soil conservation practices, including use of permanent cover crops (fig. 44) or green manure crops between rows, can also help to maintain the organic matter content and tilth of the soils.

Orchards in the Willamette Valley

Site Selection and Soil Characteristics

By Jeff Olsen, extension horticulturist, Oregon State University, Agricultural Experiment Station.

The soils in the Willamette Valley are quite variable because of the nature of their formation. Growers need to acquire site-specific soil information before planting orchard crops to determine the suitability of the soils. Orchards perform best in areas of deep or very deep, well drained, sandy or silty soils.

Orchard crops require an effective rooting depth of 3 to 6 feet. A restrictive soil layer or a seasonal high water table limits root growth and the potential yield of orchard crops. Soils that have a zone of saturation within the soil profile are not well-aerated and thus limit healthy root growth and increase the susceptibility of the roots

Figure 44.—Permanent cover crop of brome between rows in a vineyard in an area of Jory silty clay loam, sedimentary bedrock, 2 to 12 percent slopes.

to diseases such as *Phytophthora spp.* About 50 percent of the pore space in a soil should be filled with air.

Generally, orchard crops can withstand standing water during the dormant period in winter but not during the active growing season (fig. 45). Flooding in winter is not too damaging unless it is prolonged. Pears can withstand a somewhat poorly drained or poorly drained soil condition, which is typical of moderately fine textured soils, such as the McBee and Wapato series. Peaches require better-aerated soils than do apples and pears. Medium textured and moderately coarse textured soils, including fine sandy loams, loams, and silt loams, such as the Cloquato and Newberg series, are better suited to peaches than are clayey soils, such as the Abiqua series. Plums can tolerate heavier textured clay soils, such as the Abiqua, Coburg, Malabon, and McAlpin series, better than other stone fruits. Cherries are adapted to medium textured soils; they grow well on well drained silt loams, such as the Chapman and Chehalis series, but not on poorly drained soils, such as the Waldo and Wapato series. Drain tiles can be installed to improve the drainage of many of the soils (fig. 46). Some very heavy textured clay soils, such as the Conser, Pengra, Santiam, and Waldo series, are difficult to drain and should be avoided as orchard sites.

The slope of an area can influence orchard site selection. In the Willamette Valley, orchards occur on the valley floor and on the hillslopes adjacent to the valley. Trees on north-facing slopes bloom later than do those on south-facing slopes; thus, harvest time is earlier on south-facing slopes. The steeper slopes of the hills should be avoided because of the hazard of operating heavy orchard equipment in these areas, especially when the soils are wet. Erosion as a result of slope and soil compaction from heavy equipment use can be controlled by maintaining ground cover

Figure 45.—Standing water and lateral waterflow in a filbert orchard in an area of Helvetia silt loam, 2 to 7 percent slopes.

Figure 46.—Installation of tile drainage system on a hillside orchard site in an area of Helmick silt loam, 3 to 12 percent slopes.

between at least every other row in the orchard (fig. 47) or establishing a permanent system of roads or pathways for equipment use. The elevation of the site also influences the timing of bloom and harvest. Typically, the bloom period is a few weeks later at the higher elevations of the valley. If it is warm in spring, this delay is reduced or eliminated.

Frost pockets should be avoided. Cold air is heavier than warm air, and it can settle in low-lying areas. Orchards should be planted more than 50 feet up from the base of the slope. Areas on the top of hills and ridges should be avoided as well. These areas are affected by high winds that have the potential to cause major damage. Orchards should not be planted within 65 feet of a forested area because of the possible shading effect, competition for nutrients and water, and influence of cold air reservoirs associated with forested areas.

Management Considerations for Tree Fruit and Nuts

By Robert L. Stebbins, professor emeritus (retired), Oregon State University, Department of Horticulture.

With the exception of filberts (hazelnuts), production of tree fruit and nuts in the Willamette Valley has declined somewhat in recent years (1995-2004) (OAIN, 2005). Only a few hundred acres to less than 1,000 acres each of peaches, Asian and Bartlett pears, and walnuts are grown in the valley. Apples, sweet and tart cherries, and prunes and plums are grown on 1,000 to 3,000 acres each throughout the valley (OAIN, 2005). By far, the largest acreage is in filberts. Yields were 23,300 tons in 2003, 18,000 tons in 2002, and 45,000 tons in 2001 (Oregon County and State Agricultural Estimates, 2004; NASS, 2003-2004b; OAIN, 2005). These yield values were taken from approximately 30,000 acres throughout the valley, and they

Figure 47.—Lupine cover crop in a walnut orchard in an area of Helvetia silt loam, 2 to 7 percent slopes.

represent a consistent tendency for a small yield in one year followed by a larger yield the next year. Statewide production of sweet cherries was 43,200 tons in 2000 and 46,600 tons in 2004 (Oregon County and State Agricultural Estimates, 2000 and 2004). In the Willamette Valley, the acreage of sweet cherries, which are used primarily for brining, has declined consistently over the years, from more than 10,500 acres in 1999 to about 8,200 acres in 2002. Production of tart cherries, which are grown exclusively in the valley, has declined from 2,650 tons in 1999 to 1,550 tons in 2002 (NASS, 2003-2004a). Statewide production of plums and prunes, which are grown mainly in the valley, has declined from 11,200 tons in 2000 to 8,200 tons in 2004.

Since an orchard represents a long-term investment that may not have a return for the first 3 to 7 years, site selection is very important. The initial step in determining the feasibility of growing a tree fruit or nut crop is evaluating the potential market. Many fruit and nut growers in the Willamette Valley sell directly to the public at roadside stands or farmers markets. Proximity to such markets can be important for success. If the crop is to be sold at a roadside stand, proximity to prospective customers must take precedence over most other criteria for site selection. A cold storage room is needed to market produce such as apples over a period of several months. The next step in determining the feasibility of a site is to analyze the suitability of the proposed site for the intended crop.

Filberts, sweet and tart cherries, prunes, and walnuts commonly are grown without irrigation. For these crops to be successful, however, there must be a deep enough root zone and sufficient available water capacity for the trees to remain healthy throughout the dry period in summer. Apples, pears, and peaches commonly are grown under irrigation. Unless irrigated, the size of the fruit and yields are likely to

make the crop unprofitable. Typical soils used for these crops include the Chapman, Chehalis, and Cloquato series on flood plains; the Abiqua, Coburg, McAlpin, and Malabon series on stream terraces; the Willamette and Woodburn series on the main broad valley floor; and the Steiwer and Willakenzie series on the hills above the valley floor.

Especially in areas that have been cultivated for many years, soils near the top of hills (convex shoulder slopes) tend to be shallower and lower in nutrients such as potassium because of erosion by wind and water. Trees planted in swales may grow satisfactorily, but those planted higher on the slope may remain small and unproductive because of factors such as limited available water capacity and nutrient levels. All orchard crops grow poorly on soils that have a very high content of clay; however, some fare better on these soils than others. Pears can tolerate a high content of clay much better than peaches (http://eesc.orst.edu/agcomwebfile/edmat/PNW341.html).

The prevalence of disease can also determine the suitability of an orchard site. Eastern filbert blight, a deadly fungal disease, has been slowly spreading from north to south throughout the Willamette Valley, killing entire orchards. Some new crop varieties have exhibited a slight increase in resistance to this disease; however, time is needed to evaluate the degree of resistance.

Concave or depressional areas, where cold air settles in spring, may be unsuitable for crops that are susceptible to frost. Bacterial and fungal diseases are more difficult to control in these areas. Because peaches bloom early, they are susceptible to frost. They are also susceptible to fungal diseases such as brown rot, leaf curl, and corenium blight. Peach orchards should be at least 50 feet above the flood plain.

Abandoned trees harbor insects and diseases; therefore, they should be removed before new trees are planted. In areas where it has not been feasible to remove abandoned trees, insects and diseases have become a detriment to the economic feasibility of new orchards.

Orchard crops grow well in nearly level to gently sloping areas that are suited to cultural management practices and that meet site requirements such as drainage and soil depth. Risks in farming sloping areas include tractors overturning if used on the contour and falling from a ladder when harvesting fruit.

Although orchard crops generally grow well when soil pH is 5.5 to 7.5, they may grow better if lime is applied. Some established filbert orchards have shown a favorable response to liming (Baron and Gardner, 1975). A more uniform application can be achieved by applying lime before the trees are planted.

After nitrogen, the mineral elements most commonly found to be deficient in orchards are boron and potassium (http://eesc.orst.edu/agcomwebfile/edmat/EM8786-E). These elements commonly are leached from the surface layer. Boron deficiency is easy to correct with foliar sprays or direct applications to the soil. Potassium deficiency can be difficult and costly to correct, especially in soils that have a high content of clay.

Harvest of filberts is completely mechanized. For successful machine harvesting, the site should be planed and rolled before planting to prevent the nuts from settling into low spots that the sweeper and pickup harvester cannot reach. Weed control is accomplished by close mowing with a flail mower and applying herbicides between the rows of trees.

Sweet cherries for brining, tart cherries for freezing, and prunes for drying can be harvested by shake-and-catch machinery. All other fruit crops are hand harvested. It is important to use training and pruning techniques that maintain the trees at a low, accessible height. Dwarf rootstock of apples and some pears are available; however, because the fruit is heavy, dwarf trees need to be supported by a trellis or stake to avoid breakage. Peaches and apples generally require several pickings to harvest all of the fruit.

Yields per acre vary tremendously by crop and year of harvest. Typically, filbert orchards produce 1 to 2 tons of dried nuts per acre; cherry orchards, 10 to 12 tons (fresh weight); and prune orchards, 3 to 14 tons (fresh weight). Peach, apple, and pear orchards generally produce 10 to 30 tons per acre. Specific information on tree fruit and nut crops is available online at http://eesc.oregonstate.edu/agcomwebfile/EdMat/EdmatIndexAg.html.

Forage and Pasture in the Willamette Valley

By Larry Brewer and Scott Robbins, western Oregon pasture management specialists, Natural Resources Conservation Service, with input from Gene Pirelli, extension animal scientist, Oregon State University, Department of Animal Sciences, and Marty Chaney, west side pasture management specialist, Natural Resources Conservation Service.

Management

A wide variety of soil types and landscapes in the Willamette Valley are used for forage production and as pasture. The climate of the valley presents some unique challenges to year-round management and use of pasture. The climate is characterized as Mediterranean, with warm, wet winters and hot, dry summers. The average annual rainfall in the valley is about 40 to 45 inches. Usually 75 percent of the precipitation occurs between November 1 and May 31; little rain falls in June through September. Grasses grow slowly in winter. Although soil moisture is adequate, the temperatures are too cool for rapid growth. Throughout much of winter, the soils in nearly level areas are saturated with water which can result in soil compaction, damage to plants, and muddy conditions if grazed. During the dry summer, forage growth is limited by a lack of moisture unless irrigation is used or a localized condition, such as a seasonal high water table, is present.

Improved pasture generally includes forage species such as tall fescue, perennial ryegrass, orchardgrass, and white clover and to a lesser extent, subclover, trefoil, red clover, annual ryegrass, and meadow foxtail. Forage used for hay includes orchardgrass, tall fescue, perennial ryegrass, annual ryegrass, various clover species, and some alfalfa. Unimproved pasture commonly includes less productive plants such as bentgrass, common velvetgrass, meadow foxtail, white clover, shrubs such as Himalayan blackberry, and a variety of weeds.

Because of the Mediterranean climate, a rotational system of livestock grazing is well suited. Livestock are allowed to graze on pastures from mid-spring to late in spring, when high-quality forage plants are actively growing and saturated conditions are less of a concern than in winter. Livestock are then removed from the pastures in July, when plant growth slows. The soils are best suited to a seasonal management system, such as use of stocker animals, rather than to a year-round management system, such as a cow/calf operation, because of the lack of forage production in summer and the saturated soil conditions during the long, wet winter. If acreage is not a limitation, another common management practice is to stock animals based on the forage production in summer and harvest the excess in spring for use as haylage, silage, or hay. Haylage includes forage plants, such as grasses and clovers, and silage includes corn or small grain, such as wheat and oats. Both are baled at a higher moisture content than hay and stored in a sealed plastic wrap. The material ferments and is preserved by the acid production during fermentation, thus maintaining high value as feed for a more extended period of time. Supplemental forage, such as hay, commonly is used during periods of slow growth in winter and summer.

A grazing system unique to the Willamette Valley and used on soils such as the Amity, Awbrig, Concord, Conser, and Dayton series incorporates the use of sheep to manage grass plants in fields used for grass seed production (fig. 48). This system

Figure 48.—Sheep grazing in a grass seed field in an area of Amity, Concord, and Dayton soils.

provides forage for the sheep, increases grass plant tillering, and delays the formation of the seed head until the drier part of the year, such as late in June or in July. Sheep also eat fall-germinating weeds.

There are several concerns for pasture management. One is the presence of invasive shrubs, such as Himalayan blackberry and Scotch broom, in fencerows, idle fields, drainageways, streambanks, and other areas that are unmanaged and encroach into pastures. Another is accessibility of livestock to watercourses, which can affect water quality. The presence of reed canarygrass, which commonly is in drainageways and wet pastures, is also a concern. This plant has the potential to be a desirable forage grass if carefully managed; however, it is difficult to control and therefore commonly considered undesirable. Also a concern is the variability of the microclimates, which affects the growth of grasses, sometimes from one field to another on a farm. The microclimates can make it a challenge to effectively manage pastures. Additional information on pasture management is available online at http://cru.cahe.wsu.edu/CEPublications/eb1870/eb1870.pdf and http://extension.orst.edu/yamhill/pdf/late_summer_fall_pasture_ver2.pdf.

In the following paragraphs, pasture management is discussed under the categories of large-acreage farms and small-acreage farms. The primary goal of large-acreage farms is to produce income from forage production. The forage produced is used either exclusively for hay (fig. 49) or for hay and grazing. The goal is to produce the maximum amount of forage while keeping production costs low. Small-acreage farms include those that have limited pasture or pasture that is not managed as a primary source of income.

Large-acreage farms

The primary pasture management objective of a large-acreage livestock operation

Figure 49.—Cut hay ready for baling in an area of Linslaw loam, 3 to 8 percent slopes.

is to grow forage. Use and management practices that help to achieve that objective are as follows:

- Pastures should be fertilized according to guides based on soil tests (http://extension.orst.edu/catalog/ navigate to agriculture, then to fertilizer guides, and then select publication EC 1478 or FG 63-E).
- Multiple pastures should be used to allow for a rotation of grazing and resting. A minimum of four pastures for each group of animals is needed for a rotation; however, additional subdivisions facilitate management of the grasses and legumes. Permanent or temporary fences can be installed to divide pastures.
- Adequate watering facilities should be available in each pasture.
- Pastures should not be grazed when the height of the primary forage plants averages less than 3 inches.
- Pastures should not be grazed when the soils are saturated at or near the surface.
- Weeds should be controlled if they are noxious or crowding out the desirable forage plants.
- If irrigation is used, an irrigation water management plan is needed to determine the proper amount of water to be applied. It includes scheduling of irrigation for optimal use of water, growth of plants, and use of nutrients.

Fall is a particularly important time for maintaining the forage at a minimum height of 3 to 4 inches, as it is during this time that the forage plants are developing their reproductive capacity for the following spring. Plants are also building up root reserves to allow for survival in winter. Management decisions made at this time determine when new growth is initiated in spring and how much total forage will be produced over the entire season. Overgrazing or excessive harvesting of forage in fall

inhibits the rebuilding of the root system and the formation of shoots for growth in spring. Leaving taller stubble also inhibits seed germination of weeds and thus reduces the abundance of weeds the following year.

Grazing in winter can cause soil compaction, and trampling by livestock can damage forage plants. Compaction reduces yields and decreases water infiltration. Physical damage to plants or destruction of plants can occur in winter when the soils are saturated at or near the surface. Grazing when the soils are wet causes fields to become “pocked” or “hoof-imprinted,” making the surface difficult to traverse by livestock and equipment. Grazing wet soils in winter also increases stress on livestock.

Pasture management in winter primarily consists of providing as much rest of forage plants as possible in as many pastures as possible. This is necessary so that the pastures are in good condition when the warmer temperatures in spring stimulate plant growth.

An excellent method to facilitate protection of pastures in winter is use of a “sacrifice” pasture, also called a turnout, corral, run, lot, heavy use area, or paddock. Livestock remain on this pasture throughout winter and feed on hay. This practice reduces the grazing pressure on other pastures that are saturated and subject to damage or destruction if grazed.

In winter, a small number of livestock can be grazed on a large number of acres to minimize damage to the pastures. Although this practice minimizes compaction, it also promotes selective grazing and must be carefully managed. The more palatable plants can be weakened and eventually replaced by less desirable species as a result of repeated use.

A particularly useful technique that can be used to provide for grazing late in winter or early in spring is known as “T-sum 200” (http://extension.oregonstate.edu/catalog/). This practice is used on selected soils that are well drained and have good access for grazing animals, such as the Willamette, Steiwer, and Jory series. For more information, contact the local office of the Cooperative Extension Service.

The period of primary plant growth is in spring. Rotation of pastures is important for both maximizing and using plant growth. An ideal rotation consists of allowing livestock onto a pasture when the grass is about 7 inches high and allowing grazing to continue for 3 or 4 days or until the stubble is at a minimum height of 3 inches, whichever occurs first. The pasture is then rested until the grass again reaches a height 7 or 8 inches. During the period when the grass is growing rapidly, this may take as few as 7 to 10 days. Later in spring, 21 days may be more typical. The long rest periods and the short grazing periods help to maintain the health and vigor of the forage plants.

Summer pasture management practices include the following:

- Resting pastures until regrowth occurs, typically in September.
- Irrigating pastures.
- Rationing the forage produced in spring.
- Planting drought-tolerant summer annuals such as sudangrasses.
- Planting drought-tolerant perennial forage such as chicory, plantain, or possibly tall fescue.
- Using pastures that are wet in spring and thus produce forage in the dry period in summer.

To protect dormant forage plants from hoof damage, use of a “sacrifice” pasture is as essential in summer as it is in winter. Nonirrigated pastures should not be grazed once the stubble is at a minimum height of 3 inches because even dormant plants store food reserves in the stem just above the ground.

If irrigation is used in summer (fig. 50), the following practices should be considered:

Figure 50.—Irrigated pasture in an area of Linslaw loam, 0 to 3 percent slopes.

- Starting irrigation early enough to keep plants in an active growth state, which may be as early as May during a dry spring.
- Keeping livestock out of the pasture during irrigation to minimize compaction of the soil and damage to irrigation equipment.
- Waiting at least 3 days after irrigation for the soil to dry and firm up before grazing.
- Developing and following an irrigation water management plan, which includes applying an adequate but not excessive amount of water at intervals frequent enough to optimize production at the lowest cost.
- Applying fertilizer.
- Maintaining stubble at a minimum height of 3 inches by using a graze-and-rest rotation.

To produce high-quality hay, fields should be cut when forage plants are in the bud stage, before seed heads are visible (fig. 51). Cutting to a height of about 4 inches facilitates curing, speeds up regrowth, and improves the vigor of the plants. Grazing should be delayed until the forage plants have reached a height of 7 inches. Livestock should be removed from the field when the average stubble height is at a minimum of 3 inches.

Nonirrigated hayfields commonly are grazed in spring to delay the maturity of the hay plants until the soil is dry and firm. The fields are then cut for hay and the regrowth is grazed as pasture.

Hay production is complicated by the rainfall in May and June, when the plants are maturing and need to be harvested for high-quality feed. Despite this concern, hay can be harvested successfully (fig. 52). The Cooperative Extension Service at Oregon State University has developed some excellent guides for harvesting high-quality hay in western Oregon (http://extension.oregonstate.edu/catalog [EB 1870; EB 1897; EM 8801; EM 8812]). One option is to harvest the first cutting of forage during the wet period in May and June as haylage, which is a high-quality

Figure 51.—Baling of hay in an area of Coburg silty clay loam, 0 to 3 percent slopes.

Figure 52.—Rolled hay bales in an area of McAlpin silty clay loam, 0 to 3 percent slopes.

forage product similar to silage. After regrowth occurs and the rainy period subsides, the next cutting is harvested as regular low-moisture hay.

If irrigation is used for hay production, the following practices should be considered:

- Starting irrigation early enough in spring to keep the forage plants in an active state of growth.
- Developing and applying an irrigation water management plan.
- Applying fertilizer to optimize plant growth and justify the expense and effort of irrigating.

Small-acreage farms

Small-acreage farms may generate some income, but typically not enough to support a family. There are a number of these farms in the valley. The pasture is used for horses (fig. 53), llamas, cattle, sheep, goats, alpacas, vicunas, and other livestock. These farms are on a variety of landscapes and include a variety of soil types.

If there are enough acres on a small-acreage farm to supply the forage needs for livestock most of the year, pasture management should follow the same recommendations as for a large-acreage farm. If livestock forage and nutrition needs

Figure 53.—Horses grazing in an area of Jory-Dupee complex, 2 to 12 percent slopes.

primarily are met with hand-fed forage, the pasture is used for supplemental forage or as an exercise area.

For smaller farms, the primary goal in pasture management is to promote the health and vigor of forage plants and to protect the plants from overuse and destruction. Other potential goals include maintaining the pasture for aesthetic value. General pasture management guidelines for small-acreage farms are as follows:

- A "sacrifice" area should be available for livestock to minimize grazing pressure and allow for growth of forage plants. The area should be located on a well drained soil, if possible, with little if any potential for runon from rainfall. In addition, the area should be covered with wood chips, sand, or gravel and a grass filter strip should be downslope of the area. Manure from this area should be collected regularly, stored under cover, and used in the farm operation.
- An area that can be used for exercise or limited grazing should be provided. This area should be used for only short periods of time, and duration should be based on the height of the grass. It should be used only when the soils are not saturated.
- Grazing should be discontinued when the grass is at an average height of about 3 inches.
- Pastures should be subdivided to protect the forage grasses.
- Noxious weeds should be controlled by hand labor or by mechanical or chemical means.
- Pastures should be fertilized according to guides based on soil tests.
- Grazing should be limited or excluded in areas of pasture through which streams or creeks meander and areas in which aesthetic value, water quality, and wildlife and rare plants are considerations.
- Irrigation may not be cost effective for small-acreage farms; however, it improves the appearance of a pasture by keeping it green, helps to increase the health and vigor of forage plants, and provides for some supplemental forage for livestock.

More information on large- and small-acreage farms is available online at http://extension.oregonstate.edu/catalog/.

Yields

Yield information for the various soils is given in table 5. The table gives yield data for the soils known to be used as pasture and for production of forage or have the potential for these uses. In general, yields can be improved if good management and proper fertilization is used.

The Agricultural Productivity Ratings for Soils of the Willamette Valley was used as a tool to develop the pasture yield values given in the table (Huddleston, 1982). The system used to determine estimated pasture yields is discussed in more detail in the section "Yields per Acre."

Christmas Trees in the Willamette Valley

By Rick Fletcher, extension forester, Oregon State University, Benton County Extension Office.

The past half century has seen a rise in the prominence of the Christmas tree industry in the Pacific Northwest (http://eesc.orst.edu/agcomwebfile/edmat/PNW6.pdf). In 2003, Oregon ranked first in Christmas tree production among all states (NASS, 2003). Most of the total acreage in Christmas tree production in Oregon is in the Willamette Valley. In 2001, about 98 percent of the total acreage in Christmas trees was in western Oregon (fig. 54). (http://www.nass.usda.gov/or/nursery/Christmastreerelease2003.pdf).

Figure 54.—Christmas trees in an area of Dupee silty loam, 3 to 12 percent slopes.

The following paragraphs give an overview of soil management considerations for Christmas tree production and then addresses specific soil/landform issues as they relate to Christmas tree production.

General Soil Management Considerations

Soil drainage

Poor soil drainage is the primary cause for failure of Christmas tree plantations in the Willamette Valley. All of the primary commercial Christmas tree species require good drainage, although some species are more tolerant of saturation in winter and short periods of flooding than are others. Saturation of the soils kills seedling roots during the wet period in winter, weakening stock and increasing the risk of soilborne root diseases. Thus, during the period of root growth in spring, the trees expend much of their energy replacing lost roots rather than initiating new ones, which slows growth. During the dry period in summer, the trees suffer from drought because they are more shallow rooted and less able to access water at a greater depth. Tiling, ditching, and sod waterways should be considered for use in areas that have poor drainage, especially for production of species that are sensitive to wetness, such as noble fir and Douglas-fir.

Soil compaction

Soil compaction typically occurs in Christmas tree fields as a result of repeated passes with rubber-tired tractors to apply pesticides, mow, and/or harvest. Many of the soils on foothills in the valley also tend to become more compacted with time; thus, tillage should be used between rotations. In some areas tillage can be done during rotations in the first couple of years, but it must be done carefully to prevent damage to tree roots.

Deep ripping between rotations increases growth by increasing the effective rooting depth. For maximum effectiveness, ripping should be done late in summer

when the soil is dry and should reach to a depth of at least 2 feet. Ripping fields at a 90-degree angle can ensure good fracturing of the soil. A variety of equipment is available for ripping, from single-toothed rippers to winged subsoilers. If done properly, deep ripping also improves the water infiltration rate and minimizes overland flow and the resulting erosion.

Erosion

Erosion commonly is a significant problem on Christmas tree plantations because of the gentle to steep slopes and the heavy rainfall in winter. Erosion is most often associated with harvesting and/or new plantings (fig. 55). Harvesting occurs in November, one of the wettest months of the year in western Oregon. If tractors or other equipment are used in harvesting, compaction of the soils and subsequent erosion can occur. A permanent all-weather road network or use of helicopters to remove trees is recommended to minimize traffic by rubber-tired vehicles during harvest. Use of sod-covered access roads and areas around fields also minimizes compaction and erosion.

After harvest, many growers grind stumps and then fertilize and till soils to prepare for the next planting. The risk of erosion is reduced by proper soil preparation, which allows water to move through the soil rather than overland. Soils prepared for planting prior to the rainy season in winter should be protected from erosion by seeding cover crops or mulching until planting.

Erosion also can be associated with complete weed control, used during the early years of a plantation to improve the survival and growth of trees. Even on nearly level

Figure 55.—Rill and gully erosion in a newly planted Christmas tree plantation in an area of Willakenzie loam, 20 to 30 percent slopes.

slopes, rill erosion can occur, particularly in areas where the soils are compacted as a result of repetitive farming practices or where competing vegetation has been removed by use of herbicides or other methods.

Practices that minimize erosion include:

- Maintaining permanent cover on nongraveled access roads, ditches, and landing areas.
- Tilling soils to maintain good internal soil drainage.
- Using cover crops between rotations.
- Using no-till planting.
- Using cover crops between rows of trees during rotations.
- Allowing natural grass and herbaceous cover to invade the plantations during the harvest years.
- Applying mulch.

Nutrition

Soils of the Willamette Valley generally have sufficient nutrients for establishment and growth of Christmas trees, but past farming practices may have resulted in soil conditions that are too acid (pH of less than 5.2) or are deficient in individual nutrients. The wetness of many of the soils as a result of impeded or imperfect internal drainage leads to the leaching of nitrogen; therefore, applications of nitrogen may be needed during the last few years before harvest. The soil should be tested prior to planting to determine the nutrient status (http://eesc.orst.edu/agcomwebfile/edmat/EM8856-E.html). Foliar testing of trees is recommended beginning in the third year of the plantation to ensure adequate nutrition throughout the rotation (http://eesc.orst.edu/agcomwebfile/edmat/PNW6.pdf). True fir species suffer from needle necrosis, a malady associated with a calcium deficiency resulting from poor soil drainage in spring.

Insects and diseases

Insects and diseases are most commonly associated with small areas of poorly drained or shallow soils. Root rot diseases can be a problem because of the long period of wetness in the root zone, which weakens tree roots and facilitates movement of pathogens into the root zone. Improving drainage, removing stumps after harvest, and maintaining good tilth help to minimize the risk of root rot. Careful matching of species to site conditions is also an important consideration. Common insects include aphids on true fir and spider mites, midges, and Swiss needle cast on Douglas-fir.

Additional information

Additional information on management of Christmas trees is available online at http://eesc.orst.edu/agcomwebfile/EdMat/EdmatIndexAg.html and http://eesc.orst.edu/agcomwebfile/edmat/PNW6.pdf

Species and Associated Soil Types

The table in this section gives the expected performance of trees by species and soil types. Several soil series that may be suitable for Christmas tree production are not included in the table because few Christmas trees have been grown on the soils. Currently, more than one-half of all Christmas trees are grown on soils of the Jory and Bellpine series.

Species Suitability

(Ratings given are for nonirrigated and undrained soils. “Yes” means that the soil is suited to the species, “maybe” means that some areas of the soil are suited or the soil is suited if extra effort is applied, and “no” means that the soil is not suited.)

Soil name	Douglas-fir	Noble fir	Grand fir	Nordmann or Turkish fir
Abiqua	Yes	Maybe	Yes	Yes
Amity	Yes	No	Maybe	Maybe
Apt	Yes	Yes	Yes	Yes
Alsea	Maybe	Maybe	Maybe	Maybe
Bellpine	Yes	Maybe	Yes	Yes
Bohannon	Yes	Yes	Yes	Yes
Briedwell	Yes	No	Yes	Yes
Chehalis	Yes	No	No	Maybe
Coburg	Yes	No	No	Maybe
Dayton	No	No	No	No
Dixonville	Yes	No	No	Yes
Hazelair	Maybe	No	No	Maybe
Helvetia	Yes	No	Maybe	Maybe
Honeygrove	Yes	Yes	Yes	Yes
Jory	Yes	Yes	Yes	Yes
Malabon	Yes	No	Yes	Yes
McAlpin	Yes	No	Maybe	Maybe
McBee	Maybe	No	Maybe	Maybe
Nekia	Yes	Maybe	Yes	Yes
Newberg	Maybe	No	No	Maybe
Peavine	Yes	Yes	Yes	Yes
Preacher	Yes	Yes	Yes	Yes
Price	Yes	Maybe	Yes	Yes
Ritner	Yes	Maybe	Yes	Yes
Willamette	Yes	Maybe	Maybe	Maybe
Woodburn	Yes	Maybe	Maybe	Maybe

Specific Soil/Landform Considerations

Soils on flood plains

The soils in this group are rarely used for Christmas tree production because of their suitability for more intensive, higher value agricultural crops. If Christmas trees are grown on these soils, they are limited by flooding in winter and drought and heat in summer. Irrigation is needed on the coarser textured soils, such as those of the Newberg and Chapman series. Poor air drainage associated with streamside conditions may also contribute to frost damage in spring, heat burn in summer, and foliar disease in winter and spring. For species such as Douglas-fir, these soils have a tendency to produce fast-growing, woody trees that are difficult to culture and commonly are of poor quality.

The soils on flood plains in the Willamette and Alsea Valleys are as follows:

Abiqua
Alsea
Chapman
Chehalis
Cloquato
McBee
Newberg

The soils on flood plains in the Coast Range tributary valleys are as follows:

Kirkendall
Nekoma

Soils on stream terraces

The soils in this group generally are not used for Christmas tree production because of their suitability for more intensive, higher value agricultural crops. If Christmas trees are grown on these soils, they are limited by rare, usually brief periods of flooding in winter and periods of heat in summer. Irrigation may be needed on the moderately coarse textured and coarse textured soils, such as those of the Alsea and Salem series. Poor air drainage associated with streamside conditions may also contribute to frost damage in spring, heat burn in summer, and foliar disease in winter and spring. Grand fir and Nordmann fir seem to grow well on these soils as does Douglas-fir if adequate drainage is provided. These soils generally are not suited to noble fir.

The soils on stream terraces in the Willamette and Alsea Valleys are as follows:

Abiqua
Alsea
Coburg
Malabon
McAlpin
Salem

The soils on stream terraces in the Coast Range tributary valleys are as follows:

Chismore
Eilertsen
Elsie
Meda
Treharne

Soils on terraces of the Willamette Valley

The soils on the broad terraces of the Willamette Valley commonly are used for Christmas tree production if they are not already used for higher value crops. Douglas-fir, noble fir, and grand fir can be grown on Willamette and Woodburn soils. Briedwell soils can also be used, but they are somewhat limited by the content of rock fragments, which lowers the available water capacity. Some of the imperfectly drained soils in this group, such as the Amity series, are used for Christmas trees if tile drains are installed. Very little production has occurred on Chehalem and Linslaw soils because of impeded drainage. The gentle slopes generally associated with soils in this group allow for easy application of management practices. Unless soil drainage is a concern, these soils have few limitations for Christmas tree production and can produce high-quality trees.

The soils on terraces in the Willamette Valley are as follows:

Amity
Briedwell
Chehalem
Helvetia
Linslaw
Santiam
Willamette
Woodburn

Soils on hills of the Willamette Valley

The soils in this group represent about 80 to 90 percent of all the acreage used for Christmas tree production. The gently sloping areas have good soil drainage, which is necessary for most Christmas tree species. These soils are also in high demand for viticulture, including the production of grapes for wine.

The slopes of the soils in this group generally allow for very productive Christmas tree operations, particularly on the deeper soils of the Jory, Gellatly, and Price series. The restricted rooting depth of the soils of the Bellpine, Dixonville, Gelderman, Nekia, Ritner, Steiwer, and Willakenzie series can be a limitation for noble fir and grand fir. Soils such as the Dupee, Hazelair, and Helmick series generally are too wet for growing Christmas trees because of the seasonal high water table and clayey subsoil. Tiling or other drainage systems should be used in swales, seeps, and other wet areas, especially for production of species that are sensitive to wetness, such as noble fir and Douglas-fir. Trees commonly are planted in fall.

Because of the high content of clay in the soils in the group, compaction is a serious concern and can lead to erosion of the surface layer. Deep ripping between rotations is a common practice in areas that are not too steep.

Erosion is a significant problem on the soils in this group because of the gently sloping to steep slopes. If the soils are compacted as a result of farming practices and/or competing vegetation has been removed with herbicides, the risk of erosion can be high.

These soils generally have sufficient nutrients for establishment and growth of Christmas trees. The soil pH in new fields commonly is 5.5 to 6.0. These highly weathered soils may be deficient in magnesium, phosphorus, and potassium. Applications of nitrogen during the last few years before harvest may improve the color and quality of the trees.

Insects and diseases on these soils are rare, and they are most often associated with the small areas of poorly drained or shallow soils. Root rot diseases can be present because of the long periods of wetness in the root zone. Common insects include aphids on true firs and adelgids on Douglas-fir.

The soils on hills in the Willamette Valley are as follows:

Bellpine
Dixonville
Dupee
Gelderman
Gellatly
Goodin
Hazelair
Helmick
Jory
Nekia
Price
Ritner
Steiwer
Wellsdale
Willakenzie

Soils on the Coast Range Mountains

The soils in this group are highly productive for the types of conifer species commonly grown for Christmas trees, especially species such as noble fir. Because they typically are on very steep slopes away from the main valley floor, they seldom are used for Christmas tree production. The steepness of slope limits farming operations and increases the risk of erosion. Nutrients are seldom a limitation, with the exception of nitrogen, which may need to be added during the last few years

before harvest. Some areas may also be deficient in calcium. The soils on the Coast Range Mountains are as follows:

Apt
Bohannon
Formader
Hemcross
Honeygrove
Klistan
McDuff
Peavine
Preacher
Slickrock

Yields per Acre

The relative yields per acre that can be expected of selected principal crops under a high level of management are shown in table 5. These yield values were estimated using yield data from select benchmark soils and the "Agricultural Productivity Ratings for Soils in the Willamette Valley" (Huddleston, 1982). Productivity ratings alone do not represent specific yields of any particular crop, but they do facilitate consistent and objective comparisons of relative agricultural value among the soils in an area, which can be used to estimate crop yields. These yields can be used to compare the maximum productivity under nonirrigated or irrigated management.

The apparent precision of the yield values are a result of using the productivity rating system; however, yields may be higher or lower than those indicated because of variations in rainfall and other climatic factors.

The yield data from benchmark soils are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop grown. Management practices can include drainage, erosion control, and protection from flooding; proper planting and seeding rates; use of suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; maintaining favorable soil pH and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting techniques that ensure the smallest possible soil loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of crops. Crops that require special management are excluded. The soils

are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at two levels—capability class and subclass.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

All of the soils in the county have been assigned a capability classification for nonirrigated uses; however, only the soils that typically are irrigated have been assigned a capability classification for irrigated uses. The capability classification is shown in table 5.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of

government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the county has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the county that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

About 87,200 acres, or 20 percent of the total acreage, of the county meets the soil requirements for prime farmland. Most of this acreage is in the Willamette Valley, but minor amounts are in the Alsea Valley (fig. 56) and Kings Valley. The areas of prime farmland are in general soil map units 1, 2, 3, 5, 7, 8, 9, 10, and 12, which are described under the heading "General Soil Map Units."

Forestland Plant Community Zones, Productivity, and Management

By Craig Ziegler, forester, Natural Resources Conservation Service.

Forestland Plant Community Zones

The forested areas of western Oregon have long been recognized as capable of producing abundant timber. Douglas-fir has become the prime tree species to manage. It has been planted in monocultures for many decades and has been established on the fringes of its historic habitat range. The Natural Resources Conservation Service (NRCS) designates these original habitat types as "Historic Climax Plant Communities" (HCPC). Each HCPC developed under a characteristic fire regime; the frequency and intensity of fires contributed to the characteristic plant community of each site.

Many HCPC zones are in western Oregon. Those recognized in Benton County are Pacific silver fir (*Abies amabilis*), western hemlock (*Tsuga heterophylla*),

Figure 56.—View of the Alsea Valley in western Benton County.

Douglas-fir (*Pseudotsuga menziesii*), and Oregon white oak (*Quercus garryana*). These habitat types correlate to the soil temperature and moisture regimes.

The Pacific silver fir zone is at the highest elevations, generally above about 3,000 feet. The climate is characterized by cool, moist summers and cold, wet winters. This corresponds to a cryic soil temperature regime and a udic soil moisture regime. Pacific silver fir is the major climax species, but it is not commonly found in the overstory canopy of managed stands. Common tree species are western redcedar, western hemlock, Douglas-fir, and noble fir. After natural disturbance, it can take 400 to 500 years for Pacific silver fir to become established as seedlings and saplings in the forest stand (Cope, 1992). Under natural conditions, the most common disturbance has been wildfire. Because of the moist and wet, cool and cold climate, fires occurred infrequently. When a fire did occur, it generally was a stand-replacement fire where most, if not all, trees were killed. After such a fire, Douglas-fir or noble fir was the first tree species to become established. Depending upon the size and severity of the fire, it may have taken as many as 100 years to become established. Either of these two tree species may become dominant in a stand, but over many years noble fir can become dominant in the overstory with some old-growth Douglas-fir towering over the noble fir.

Forested stands in the Pacific silver fir zone typically are managed for Douglas-fir and/or noble fir. Western hemlock may also be present, but it generally is less abundant in the stand. Pacific silver fir is very shade-tolerant. It will become established beneath an existing tree canopy of Douglas-fir and noble fir and will eventually become the dominant tree in the canopy. The forest ground vegetation commonly is a well developed layer of shrubs, forbs, and mosses. The most common understory plants are Oregon oxalis, Queenscup beadlily, salmonberry, blueberry, western swordfern, cascade Oregongrape, Starry false Solomon's seal, blackberry, and Oregon fairybells. Representative soils in the Pacific silver fir zone include the Newanna, Sevencedars, Woodspoint, Valsetz, and Yellowstone soils derived from volcanic rock and the Luckiamute, Lurnick, and Maryspeak soils derived from sedimentary rock.

The western hemlock zone is the most extensive in western Oregon. This zone generally is at an elevation of about 1,800 to 3,000 feet. The climate is characterized by warm, moist summers and cool, wet winters. This correlates to a frigid soil temperature regime and a udic soil moisture regime. This zone is on south-facing slopes at the higher elevations and on north-facing slopes at the lower elevations. Under natural conditions, western hemlock is the climax tree species. It is very shade tolerant and if undisturbed will regenerate under any shaded canopy. The most common historic disturbance was wildfire, which occurred infrequently and resulted in old-growth hemlock forests, with trees 400 to 600 years old (Franklin and Dyrness, 1973). The fire regime generally is 150 to 400 years or more (Tesky, 1992). Most fires occurred during the hot, dry summers. They tended to be stand-replacement fires. The initial trees to reestablish were red alder, Douglas-fir, or western hemlock.

Even though this area is recognized as the western hemlock zone, Douglas-fir currently is dominant. This is largely due to the intense management of Douglas-fir for timber during the last 60 to 100 years. After harvesting, Douglas-fir has been replanted, maintaining a seral stand. A common management rotation cycle for Douglas-fir is 50 to 70 years. Typical understory vegetation is western swordfern, salal, Oregon oxalis, cascade Oregongrape, violet, blueberry, twinflower, rhododendron, insideout flower, and blackberry. Other trees that can be found in varying amounts are western redcedar, red alder, and bigleaf maple. Representative soils in the western hemlock zone include the Caterl, Giveout, Laderly, Murtip, and Romanose soils derived from volcanic rock and the Blodgett, Burntwoods, Chintimini, Fiverivers, Grassmountain, and Oldblue soils derived from sedimentary rock.

The Douglas-fir zone is subdivided into moist and dry areas. Immediately adjacent to the western hemlock zone is the moist area of the Douglas-fir zone, which is warmer and somewhat drier than the western hemlock zone. The climate is characterized by hot, moist summers and warm, wet winters. This corresponds to a mesic soil temperature regime and a udic soil moisture regime. Under natural conditions, Douglas-fir is the climax tree species. Western hemlock can also be present in the forest canopy, but generally as a minor component. Occasionally, western hemlock makes up a large portion of the overstory. This occurs on moderately steep to steep north aspects or along streams in riparian areas. In these areas, the microclimate is cooler and moisture is more readily available, allowing western hemlock to grow successfully. Other trees that can occur in the moist area of the Douglas-fir zone are western redcedar, bigleaf maple, red alder, and Pacific yew.

Historically, fires occurred more frequently in the Douglas-fir forests. The regional average frequency of fires is estimated to be about 230 years (Agee, 1991a). When fires were more frequent, the intensity was low to moderate and the old Douglas-fir trees with thick bark generally survived and were the seed source for new seedlings. When the period of time between fires was longer (more than 200 years), fires generally were moderate to severe in intensity and probably stand-replacing. Most, if not all, trees were burned. If a few trees survived, they became the seed source for the new forest.

Today, the moist area of the Douglas-fir zone is almost entirely comprised of managed forests. It is highly productive if good forest management is applied. After harvesting, Douglas-fir seedlings are planted to maintain the stand. A common rotation cycle for Douglas-fir is 50 to 70 years. Typical understory vegetation is salal, swordfern, snowberry, cascade Oregongrape, blackberry spp., California hazel, starflower, baldhip rose, and pathfinder. Representative soils in the moist area of the Douglas-fir zone include the Formader, Harslow, Hemcross, Honeygrove, Kilchis, Klistan, Peavine, and Shivigny soils derived from volcanic rock and the Apt, Blachly, Bohannon, Digger, Honeygrove, Kilowan, McDuff, Peavine, Preacher, Remote, Slickrock, and Umpcoos soils derived from sedimentary rock.

The dry area of the Douglas-fir zone is along the eastern edge of the Coast Range

Mountains, at the lowest elevations that are forested in Benton County. This area extends onto the upper slopes of the Willamette Valley foothills. The climate is characterized by hot, dry summers and warm, wet winters. This corresponds to a mesic soil temperature regime and a xeric soil moisture regime. Douglas-fir is the climax tree species in this area. Other species that may be in the overstory are grand fir, bigleaf maple, incense cedar, Pacific madrone, Oregon white oak, and some golden chinkapin. The understory vegetation is comprised of plants that can withstand the hot, dry conditions, such as poison oak, California hazel, oceanspray, snowberry, starflower, strawberry, baldhip rose, whipplevine, hairy honeysuckle, blackberry, and brackenfern. This area generally is managed for Douglas-fir. After harvesting, Douglas-fir seedlings are planted. Because of dry summer conditions, establishment of seedlings can be difficult, especially on south- and west-facing slopes. Representative soils in this dry area of the Douglas-fir zone include the Dixonville, Gelderman, Gellatly, Jory, MacDunn, Nekia, Price, and Ritner soils derived from volcanic rock and the Bellpine, Dupee, Jory, Willakenzie, and Wellsdale soils derived from sedimentary rock.

The Oregon white oak zone consists of two distinct oak communities—oak savanna and oak woodland. Oak savanna is recognized by having no trees to as many as 10 trees per acre (fig. 57), and oak woodland is recognized by having 30 to more than 60 trees per acre. Willamette Valley pine, a variety of ponderosa pine, historically was present and was a minor to major component in oak stands. Much of the Oregon white oak forest is gone today. It has been converted to rural residential areas, urban areas, and agricultural areas, such as cropland and pasture or has been overtaken by Douglas-fir and other conifers. These soils have a mesic soil temperature regime and a xeric soil moisture regime. Oregon white oak can grow under several soil and climatic conditions, from areas of poorly drained, clayey soils on low hills and broad valley terraces to areas of droughty, coarse-textured soils on flood plains. These soils can be very wet in winter and extremely droughty in summer.

Figure 57.—Oak savanna vegetation on south-facing slopes of Pigeon Hill in an area of Witzel-Ritner complex, 30 to 60 percent slopes, in William L. Finley National Wildlife Refuge.

White oak is also in the Willamette Valley foothills in areas of droughty, gently sloping to steep, shallow soils.

Historically, the oak savanna was very open with a grass understory. The large, old oaks with spreading crowns have grown in the open areas. Written records by early settlers (1850's) described open areas with tall grasses (Boyd, 1986; Johannessen and others, 1971). The Native Americans at that time frequently burned the vegetation to maintain an open prairie grassland. The fire intensity of these burns was low, thus they did not harm the larger oak trees. As a result of the exclusion of fire, much of the oak savanna has been converted to oak woodland, with several hundred oak stems per acre, or is being overtaken by Douglas-fir, grand fir, and incense cedar. These moderately shade tolerant species successfully establish under the white oak, grow up through the oak canopy, and eventually shade out some or most of the oak. They also prevent ponderosa pine from regenerating (Hibbs and others, 2001).

Records do not specifically mention much about the understory other than general references. Some typical native vegetation found under Oregon white oak growing in open areas include Roemer's fescue, Idaho fescue, California oatgrass, blue wildrye, junegrass, Lemmon's needlegrass, serviceberry, snowberry, poison oak, oceanspray, tall Oregongrape, and baldhip rose. Representative soils in the oak savanna portion of the Oregon white oak zone include the strongly sloping to steep Willamette and Woodburn soils derived from silty glaciolacustrine deposits on escarpments of the main valley floor terraces; the Chehalem, Hazelair, Linslaw, Pengra, and Santiam soils derived from silty and loamy glaciolacustrine deposits over clayey alluvium on low hills and old remnant terraces; the Philomath, Witham, and Witzel soils derived from volcanic rock; and the Chehulpum, Panther, and Steiwer soils derived from sedimentary rock.

Oak woodland is more common in the southern part of the Willamette Valley than in the northern part. It is more commonly in areas of shallow and droughty soils and on south-facing slopes of the lower hills just above the valley. Ponderosa pine may also be present in these stands. Representative soils in the oak woodland portion of the Oregon white oak zone include the Briedwell soils derived from gravelly alluvium on terraces; the Dixonville, Nekia, Ritner, and Witzel soils derived from volcanic rock; and the Goodin, Philomath, and Steiwer soils derived from sedimentary rock.

The historical distribution of ponderosa pine in the Willamette Valley is not easily determined. The Government Land Office (GLO) survey records mention ponderosa pine, white oak, and occasionally Douglas-fir on the foothills and flood plains and in the riverine forest areas between Eugene and Halsey (Johannessen and others, 1971). A sawmill built in 1852 near Alpine processed ponderosa pine lumber (Hibbs and others, 2001). Diaries of settlers and others also mention the presence of pine. These records suggest that ponderosa pine was once present throughout much of the valley.

Precipitation in the counties that comprise the Willamette Valley ranges widely. In the areas where oak woodland and oak savanna normally occur, the average annual rainfall is about 40 inches. On the eastern fringe of the coniferous forest (dry Douglas-fir zone), the average annual rainfall is about 55 inches. At the highest elevations, the average annual rainfall is about 135 inches. Most of the rain occurs in November through May. During this time, extended periods of cloud cover are common. Snow occurs mainly at the highest elevations (cryic zone). The snow does not stay long, generally no more than 30 to 60 days. Snow does not occur regularly at the lower elevations, but when it does it stays on the ground 1 to 3 days. The length of the frost-free season varies with elevation. At the lower elevations, the frost-free season averages 165 to 210 days. At the highest elevations, the frost-free season is much shorter, averaging 60 to 100 days.

Fire has played an important role in the history of the forests. Long periods

between fires allowed plant species, such as trees, shrubs, and forbs, that are fire sensitive and/or shade tolerant to establish and grow. The fire return interval, or the time between fires, varies with elevation, precipitation, and location (latitude and longitude).

The fire return interval in the Pacific silver fir zone is recognized as being long. Fires were infrequent (interval estimated at 400 to more than 500 years) because of the high humidity and annual precipitation. Fire frequency is a limiting factor in the establishment of Pacific silver fir, which is sensitive to fire throughout all stages (Agee, 1991b). The sensitivity to fire is primarily because of its thin bark, shallow root system, and highly flammable foliage (Cope, 1992). Even though Pacific silver fir is recognized as the climax species in the cool, wet, high-elevation areas, it is possible that it may not occur in some areas of this zone. When low-intensity fires occurred, mortality of Pacific silver fir probably was high. If present, fire tolerant and moderately fire tolerant species survived and reseeded. Generally, fires in this zone are severe because of the long periods between fires, the large amount of fuel on the forest floor, and the high density of trees (Houston and Scott, 1992). These fires typically are widespread and are driven by the extremely dry weather conditions.

The fire return interval in the western hemlock zone is relatively long but not as long as in the Pacific silver fir zone. The most significant natural disturbances were large fires that occurred at intervals of 150 to more than 400 years (Tesky, 1992). The frequency of fires varies according to changes in climate. When the climate in the Coast Range Mountains was drier and warmer, the mean fire return interval (MFI) was estimated to be 110 years plus or minus 20 years. This MFI was more suited to maintaining Douglas-fir, red alder, and in the driest areas, Oregon white oak. When the climate was more moderate, the MFI was 160 years plus or minus 20 years. This longer interval allowed shade and fire intolerant species to become established. When the climate was cooler and wetter, the MFI was estimated to be 230 years plus or minus 30 years, which allowed western hemlock, western redcedar, Sitka spruce, and other species to become more dominant in the forest stands (Long and others, 1998).

Western hemlock has a low degree of fire resistance because of its thin bark, shallow roots, highly flammable foliage, and low-hanging branches (Tesky, 1992). It tends to form dense stands and its branches commonly are covered with lichen, increasing its susceptibility to fire. After a severe fire, the initial natural succession begins with the establishment of stands of red alder and/or Douglas-fir. Over time, Douglas-fir usually becomes the dominant species in the forest. If fire does not return after the establishment of a Douglas-fir forest, western hemlock can regenerate under the Douglas-fir. With continued fire exclusion, hemlock will grow up into the canopy. Because it is shade tolerant, it will continue to regenerate and will eventually become dominant in the canopy. Douglas-fir will slowly leave the canopy, and only a few large old-growth trees will remain.

The fire return interval in the Douglas-fir zone is 80 to 200 years, with stand-replacing fires possibly occurring at 400-year intervals or more (Uchytil, 1991). There can be considerable variability in the fire return interval as a result of changes in climate (Agee, 1991a). Generally, the moist area of the Douglas-fir zone has a longer fire return interval than does the dry area. The old-growth Douglas-fir trees have a thick, corky bark that protects the tree from low- and moderate-intensity fires (Uchytil, 1991). These trees were the seed source for a new forest when fire killed all of the other trees. Wind-dispersed Douglas-fir seed from offsite trees colonizes the burned area (Spies and Franklin, 1988). If stand-replacing fires are extensive, a seed source may be limited. Seed may come from the few mature trees that survived, from trees in small unburned pockets, or from trees adjacent to the burned area. Where seed trees are scarce, it may take as many as 100 years or more for Douglas-fir to completely

restock burned areas (Spies and Franklin, 1988). Where fires do not kill all of the trees in a stand, seedling establishment may begin within a year or two after burning. Mineral soils exposed by fire generally are considered the most favorable seedbeds.

The driest and warmest forest plant community is the Oregon white oak zone. Historically, Oregon white oak was subject to low-severity surface fires, which occurred every few years. Frequent fires resulted in the open savannas typical of pre-settlement times in the Willamette Valley (Sugihara and others, 1987). Dead woody fuel was minimal, but flashy fuel (grass) that dried out early in summer was abundant. Fires generally spread rapidly but moderated in the gently sloping areas. Moderately intense fires rarely kill large trees, but smaller oaks may be destroyed or suffer severe cambium damage (Burns and Honkala, 1990). Low-severity surface fires rarely harm mature trees, but seedlings and saplings are commonly top-killed. Crown fires generally will kill Oregon white oak.

Oregon white oak has adapted to low- and moderate-severity fires by sprouting from the bole, root crown, and roots. Sprouts grow far more rapidly than do seedlings germinated from acorns. Initial establishment of seedlings is somewhat dependent on fire. Although this species does not require a bare mineral soil seedbed, seedling establishment is greatly enhanced when the layer of litter has been removed by fire.

Top-killed Oregon white oak sprouts vigorously. This is demonstrated by the many young, even-aged stands of oak that exhibit good post-fire recovery with large numbers of sprouts per stump. In the absence of subsequent fires, these sprout clumps form dense stands of tall, narrow-canopied trees (Dale and others, 1986). As a result of fire suppression, most Oregon white oak woodland today is this type. If subjected to subsequent fires, individual root crowns produce fewer sprouts per clump with each fire. Continued periodic fires ultimately result in an open savanna with widely scattered, large oaks (Roy, 1955).

Forestland Productivity

Most of the forested soils in the county are considered highly productive. Productivity is dependent on soil depth, soil moisture, rock fragment content, fertility, and climate. In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. Site index tables have been developed for most commercial tree species (Curtis and others, 1974; DeMars and Herman, 1987; King, 1966; Wiley, 1970). More detailed information regarding site index is available in the “National Forestry Manual” (http://soils.usda.gov/technical/nfmanual).

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Absence of an entry in the table indicates one of the following—the soil is not forested or used for commercial timber production; some areas of the soil are forested or used for commercial timber production, but no data were collected; or the soil is forested or used for commercial timber production, but only minimal data were collected and therefore did not meet the standards detailed in the National Forestry Manual.

A group of site indexes is called a site class. Classes have been established for

most commercial tree species. Site classes 1, 2, 3, 4, and 5 generally are used. Site class 1 is the most productive, and site class 5 is the least productive. For Douglas-fir, class 1 (50-year base age) is more than 136, site class 2 is 116 to 135, site class 3 is 96 to 115, site class 4 is 75 to 95, and site class 5 is 55 to 74. Site class 1 soils can support the most trees and produce the most wood volume. These soils generally are very deep (60 inches or more), medium textured, and high in content of nutrients and organic matter; have a high available water capacity; and are well drained. These soils can support more trees per acre without having to compete for available resources; however, there is a limit. A stand of 400 young seedlings on an acre generally does not produce a stand of 400 50-year-old trees. Competition for moisture, light, and space leads to mortality; thus, the site usually is at or below its potential productivity. To reach full potential productivity, a stand requires good management. Adjusting stocking rates (trees per acre) based on characteristics such as soil conditions, precipitation, and species, age, and growth rate of trees influence the amount of wood volume produced.

Productivity is also influenced by the availability or lack of nutrients. A productive soil has a good balance of nutrients. A lack of nutrients or an imbalance of nutrients can be detrimental to productivity. Nutrient availability decreases with a decrease in soil pH. Generally, conifer trees grow best in acidic soils. The optimum soil pH for a western Oregon conifer tree is 4.5 to 6.0. If the soil pH drops below 4.5, several major elements become less available for plant growth. Growth of some soil microorganisms, such as bacteria and actinomycetes, which are of great importance in the decomposition of soil organic matter and the liberation of available nutrients, is essentially prohibited by low soil pH (Brady, 1974). Soil fauna and microflora may change unfavorably, the physical properties may be impaired, and deficiencies of nutrients (calcium or magnesium) and toxicity to certain elements (manganese or aluminum) may develop (Lutz and Chandler, 1961). The ability of the soil to release hydrogen ions and replace them with other beneficial positive ions, such as nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur, decreases. This exchange is known as cation-exchange capacity (CEC). Generally, fine textured soils (silty clay and silty clay loam) have a higher CEC than do coarse textured soils (sand, sandy loam, and loamy sand). If the soil pH is below 4.5, micronutrients are abundant. Aluminum, iron, and manganese are often soluble in sufficient quantities to be toxic to the growth of some plants. The highly used nutrients become less available, creating a nutrient imbalance. Tree will still grow but not at an optimum level. Site quality, in so far as it is influenced by soil, depends on the integration of all physical, chemical, and biological properties. The chemical composition of soils is influenced by the parent material, biological activity, climate, topography, and time (Lutz and Chandler, 1961).

Forestland Management

Much of the forested area is managed for timber production. The major forestland managers are the Bureau of Land Management, the Forest Service, Oregon Department of Forestry, private timber companies, and individual landowners. Fire protection for the private land is provided by the Oregon Department of Forestry and local fire districts. The Bureau of Land Management and Forest Service provide fire protection for land that is administered by these agencies. Douglas-fir is the primary tree species being intensively managed for lumber products. Western hemlock, which readily regenerates in the udic zone, also has potential for use as specialized lumber products.

The silvicultural systems used by individual landowners and other managers differ according to their objectives. Silvicultural systems define the sequence of management practices that take place over the entire life of a forest stand. A silvicultural system consists of three phases—harvesting, regeneration

(reforestation), and management. Because of the wide variety of forest types and site conditions in the county, actual practices used in each phase on a specific harvest unit vary. The value and quality of wood products should be considered in the design of silvicultural systems. Practices may include proper rotation periods between harvests, regulation of stand density, and tree pruning or thinning (Kintop and Ziegler, 2004). Reforestation is the most critical part of any silvicultural system. All silvicultural practices are regulated under a variety of statutes, one of which is the Oregon Forest Practices Act (State of Oregon, 1991).

Currently, even-aged silvicultural systems are used by landowners that manage the largest acreages. Some other landowners use uneven-aged systems on all or part of their land. The even-aged systems commonly used in the county most closely resemble classic silvicultural systems, which apply the clearcut and shelterwood methods of harvesting (Smith, 1962).

In response to concerns about the protection of endangered species (USDI, 1992) and other environmental issues, some landowners are using other silvicultural systems for managing forestland (Franklin, 1990; USDI, 1994 and 1995). These systems are modifications of the more traditional systems. The main emphasis of management is shifted from timber production to retention or re-creation of an ecosystem that more closely resembles the natural ecosystem in composition, structure, and function. Retaining live trees, snags, and large-sized downed woody debris provides the initial structure and composition for development of the natural ecosystem. The composition of the forest stands that result commonly have multiple canopies and multiple ages of trees (Kintop and Ziegler, 2004).

Clearcutting has become the harvesting technique of choice (fig. 58). After an area

Figure 58.—Area of Valsetz-Yellowstone complex, 60 to 90 percent slopes, that has been clearcut. This area is in the Coast Range Mountains.

is harvested, establishment of a new forest stand is required. To ensure that the planting is successful, site preparation for the new seedlings is of highest priority. An important factor in preparing a site for new seedlings is the control of competing vegetation. It is critical to keep unwanted vegetation away from newly planted seedlings because it will compete with the seedlings for moisture and light. The unwanted vegetation can be treated either mechanically or chemically.

Within each of these management operations are several options that can be used. A site-specific system can be developed, depending on the species, slope, aspect, precipitation, temperature, and soil.

Another important issue is soil compaction. Soils have a natural density known as bulk density. It is defined as the mass (weight) of 1 cubic centimeter of soil divided by a unit volume of dry soil, including both soil particles and pore space. Soils that are loose and porous are lighter per unit volume and thus have a lower bulk density as compared to soils that are more compact and are heavier per unit volume (Brady, 1974). Within various particle-size classes, bulk density is an indicator of how well plant roots are able to extend into the soil (USDA, 2003). Soils that have a higher bulk density are more restrictive to root penetration.

Operating heavy equipment causes compaction of the soil, decreasing the amount of available pore space and increasing the bulk density. As the bulk density increases, seedling root growth is restricted because the roots cannot extend further into the soil for nutrients and water. A slight increase in bulk density has very little effect on root growth; however, a large increase can significantly affect root growth. Timing the use of heavy equipment is critical. Saturated soils compact easiest, moist to wet soils compact somewhat less easily, and dry soils have the least potential for compaction.

Roots need pore space to grow. Pore space is the physical space between soil particles. Water and oxygen in the pore spaces along with the physical space are needed for root growth. As the pore space decreases with increased compaction, most roots will be concentrated around the fringes of the compacted area. The smaller root mass limits the amount of water and nutrients that can be used for above-ground tree growth. Soil compaction also affects the actual root development. For good root growth, the size of the pores needs to be larger than the root tips. If pore size is reduced by compaction, the roots become larger in diameter in order to exert more force to “squeeze” into the smaller pore spaces. As roots thicken, growth slows. Lateral root development increases when roots thicken. If the lateral roots are smaller than the pore size, they will continue to develop. If compaction is severe and pore size is smaller than the lateral roots, growth of the roots will stop and the above-ground tree development will stop or drastically slow down.

Soil compaction is affected by texture, rock fragment content, and soil moisture. Soils that are at or near saturation compact more easily than do soils that are dry. Soils that have a low content of rock fragments compact easier than do soils that have a moderate or high content of rock fragments. Generally, fine textured soils are more susceptible to compaction than are coarse textured soils. Compaction also decreases the infiltration rate of water and air into the soil. The effects of compaction can last for many years, diminishing the growth potential and wood volume production of trees.

Site preparation, such as clearing brush and piling logging slash, with heavy equipment can also cause compaction. Timing of site preparation is important to minimize the risk of compaction when using tracked or rubber-tired equipment. Site preparation should be completed late in summer or early in fall when the soil is driest.

When converting pastures to forest, other types of mechanical treatment may also be needed. Livestock grazing when the soil is wet causes soil compaction. A subsoiler or chisel plow should be used to break up the compacted layer to a minimum depth of 18 inches. Subsoiling or chisel plowing should be completed in summer or fall prior to planting.

Establishing new seedlings on a well prepared site is readily accomplished. Selecting the proper seedlings for a site is critical. Variability in site conditions, such as the type of soil, elevation, precipitation, and aspect, should be considered in determining the size of tree seedlings to plant. In the Coast Range Mountains and foothills, large seedlings (2-1) are recommended because of the rapid growth of unwanted vegetation on cleared sites (fig. 59). The 2-1 seedlings are tall and have large roots systems, which make them better able to become established and compete with brush. On the hills of the Willamette Valley and on the broad valley floor, smaller seedlings can be used. Seedlings that perform well are those grown in plugs (containers), plugs+1 (1 year in plug and 1 year in nursery bed), or 2-0 (2 years in controlled growing environment). In areas where competition for moisture is critical, keeping competing vegetation away from the newly planted seedlings is essential to ensure successful survival. Vegetation can be removed by hand or use of equipment or chemicals. Timing of removal is critical. Competing vegetation should be removed early and repeatedly for best results.

Animals can also become a nuisance and kill trees or set back growth of trees. Grazing of terminal buds on the ends of branches or the main leader stem by deer, elk, or livestock slows tree growth and can result in growth of multiple leaders, lowering the quality of the trees. Stems and roots are used as a food source by mountain beavers, mice, and voles. Clearing vegetation 3 to 4 feet around seedlings reduces the risk of damage by animals.

Access roads are needed for forest operations that require use of heavy equipment for harvesting, thinning, and site preparation. It is recognized that roads are the major source of sediment reaching streams; therefore, proper placement,

Figure 59.—Reforestation with Douglas-fir seedlings after a slash burn in an area of Oldblue-Burntwoods complex, 5 to 30 percent slopes.

design, and construction are needed to minimize the movement of sediment offsite (Swift, 1984). The geology, soils, and topography of a site along with the amount and intensity of rainfall should be considered when designing roads. Roads should be in-sloping, out-sloping, or crowned. Breaks in the slopes should be included to safely move water off the road. This can be accomplished by installing water bars or rolling water dips. Spacing for a bar or dip should be based on the potential risk of erosion on the road surface. Fine textured and moderately fine textured soils (clay, silty clay, sandy clay, clay loam, silty clay loam, or sandy clay loam) are more erosive than are coarse textured soils (sand, coarse sand, or loamy sand). As the content of rock fragments increases, the erosivity of the soil decreases. Research has shown that a 6-inch layer of three-quarter-inch minus rock can significantly reduce sediment delivery from roads (Swift, 1984).

Cut-and-fill slopes of roads can also be a source of sediment. Proper erosion control is needed on all newly exposed soils to minimize soil detachment and sediment delivery (Burroughs and King, 1989). Most of the forested soils in the county have a surface layer of loam, silt loam, or clay loam. Generally, cut-and-fill slopes of established roads produce little sediment in streams if proper erosion control methods are applied. Without proper design and treatment, cut-and-fill slopes can deliver a significant amount of sediment to watercourses (fig. 60). Included in proper road design is accurate sizing and location of culverts. Culverts are designed to safely handle the velocity and volume of water from roads as well as intermittent and perennial streams. Water runoff and sediment movement from road corridors are influenced by soil texture, rainfall intensity, vehicle usage, and slope. These factors

Figure 60.—Sediment transported through a culvert and deposited in a roadside drainage ditch.

should be considered when determining the size of the culverts needed to properly function for many years.

Roads that are no longer used should be treated to improve drainage and reduce sedimentation. Treatment can be as minor as seeding roads and cut-and-fill slopes and constructing berms to restrict movement of sediment, or it can be more involved and include practices such as ripping roads, planting tree seedlings, removing culverts, seeding/planting native vegetation, or filling in the road area and reconstructing the hillside. The goal of these operations is to return the area to its natural hydrologic condition.

Forest management practices such as road construction, timber harvesting, and slash removal by burning may alter both the physical and biological (vegetative) properties of a landform, influencing slope stability and the occurrence of mass wasting (fig. 61). Mass wasting is the downslope movement of soil material and rock by landslide processes such as shallow, rapid, translational failures; debris avalanches and torrents; slump-earthflows; and creep (ODF, 2000a; Swanston, 1979). Mass wasting is a natural process within watersheds, although the frequency and magnitude can be influenced by human activity. Many of the major concerns and impacts of mass movement occur offsite, affecting public safety, private property, roads, bridges, water quality, and fisheries (USDI, 1996).

For the purposes of this discussion, the term “landslide” is used as a general term that includes all gravitational mass movement, even though some are not truly “slides” (Burns, 1998; Schuster and Chleborad, 1989).

Some of the more important factors that contribute to soil/slope instability are steep gradient, low soil strength, declining root strength, water accumulation and alteration

Figure 61.—Burning of logging slash in an area of Klistan-Harslow complex, 30 to 60 percent slopes.

of natural water routes, and high frequency, duration, and intensity of precipitation (USDI, 1996).

Physical alterations of the landscape can include slope steepening, slope-water effects, and changes in soil strength. Most of these modifications are a result of construction of roads and skid trails. On a unit-area basis, roads have the greatest effect on slope stability of all management activities on forestland (Sidle and others, 1985). Changes in vegetation can also have both hydrological and mechanical effects on the stability of slopes (Greenway, 1987).

The vast majority of earlier landslide studies have focused on the relationship of tree removal and road construction to debris slides, also referred to as shallow-rapid landslides, and not on deep-seated landslides (ODF, 2000a). Nearly every research study indicates that areas on steep and unstable hillsides that have been clearcut are more susceptible to landslides and the associated erosion and sedimentation than are areas of uncut forests (Hockman-Wert, 1997; Swanson and Dyrness, 1975; Swanson and Swanston, 1977; Swanston and Swanson, 1976; Swanston, 1979; Weaver, 1996; Youngberg and others, 1971). Other studies demonstrated relatively small differences in the frequency of landslides in clearcut and uncut areas (Ketcheson, 1978). Road construction by side casting on steep slopes can result in increased susceptibility to landslides and stream sedimentation. The impact of sediment introduced into streams and rivers by landslides and road failures may persist for many decades, depending on the rate of transport. The impact of sediment on low-gradient large streams and rivers may actually increase over the near term (next several years) as sediment from the headwater areas is moved downstream and deposited in lower gradient reaches (Weaver, 1996).

The earlier studies only addressed landslide rates during the first few years after harvest. None looked at landslide rates in areas with established second-growth forests. More recent studies have shown that clearcutting may actually only change the timing of natural landslides, and over longer periods of time the total erosion from shallow-rapid failures may be independent of timber removal (Froelich, 1978; Swanson and others, 1981; Swanson and Frederiksen, 1982). One such study documented that in the years immediately after logging, the displacement rate of an active earthflow increased to 20 millimeters per year. After 3 years, the displacement rate returned to the pre-logging rate of 3 millimeters per year (Swanston and others, 1988).

After harvesting, acceleration of soil mass movement is frequently observed for 10 to 15 years, but subsequent erosion (before the next harvesting rotation) may actually decline below “normal” levels. This hypothesis has not yet been substantiated by field data (Sidle and others, 1985). A study completed by the Oregon Department of Forestry in the late 1990’s suggested that even if clearcutting did increase the number of landslides in the first 10 years after logging, it may not increase the number of slides over the long term. If a site is prone to sliding, clearcutting hastens the inevitable but does not cause more slides. The study indicates an increase in the frequency of landslides in the first 10 years after harvest and then a decrease afterwards (Mills, n.d.; Robison and others, 1999).

Landslide erosion affects less than 1 percent of the land base in western Oregon (USDI, 1996). Although only a small percentage of the land base may be affected, it can have a significant impact on water quality and fish habitat. One study found that 95 percent of all slides occurred on slopes of more than 70 percent (35 degrees) (Swanson and others, 1981).

Forest operations in mountainous regions have a major impact on soil-erosion processes. Accelerated erosion due to forestland management activities may result in reduced productivity of forested soils over sizable portions of the affected watershed; damage to roads, bridges, and other structures; and deterioration of the environment downstream (Swanston and Swanson, 1976).

Roads can be a significant source of sediment deposited in streams in forests (fig. 62), and the sediment can be detrimental to aquatic ecosystems. The principal impacts of road construction are interruption of the natural balance between the resistance of the soil to failure and the downslope stress of gravity as a result of disturbance of marginally stable slopes and alteration of subsurface and surface water movement. Disturbance results from careless or improper cutting of marginally stable slopes, poor construction and improper placement of fills on steep slopes, and improper design of drainage systems. The routing of water is altered by interception of surface water at cut slopes, surface drainage from roads, and use of ditches and culverts (Megahan, 1972; Harr and others, 1975). Mass erosion commonly occurs in areas where natural and artificial drainage systems are inadequate for the amount of excess water (Swanston and Swanson, 1976). Traffic on roads and grading to maintain roads rejuvenate the supply of fine sediment and thus make roads a potential long-term source of sediment in streams. The cost of total erosion control on roads or capture of all sediment from roads is prohibitive and in most locations unnecessary because the forested slopes below the road catch and retain much of the lost sediment (Reid and Dunne, 1984). Except for landslides, erosion is not a major concern in the moist forests of the Pacific Northwest because the overstory and understory vegetation and ground litter protect the soil from the impact of the raindrops (ODF, 2000b). The moist climate also allows for fast regrowth of the vegetation after most disturbances. The key to predicting whether a road segment will be a significant source of sediment in streams is determining the connectedness of road drainage system to stream channels (Reid and Dunne, 1984; King, 1980; Luce and Black, 2001; and Luce and others, 2001).

Timber removal has traditionally been considered the primary cause of reduced deep-soil root strength and alteration of the hydrologic regime at the site, possibly through the loss of transpiration by plants (Barnett, 1989; Swanston and Swanson,

Figure 62.—Area of Harslow-Kilchis-Rock outcrop complex, 60 to 90 percent slopes. Roads are a source of sediment that can be detrimental to aquatic ecosystems.

1976). Most of the research on the effects of vegetation on slope stability in forests of the Pacific Northwest has been concentrated on the potential reduction in root reinforcement, or root strength. The importance of roots to the stability of shallow soils in steep areas under intact coniferous forests and after removal of forests in western North America has been documented by many researchers (Swanston, 1970 and 1974; O'Loughlin, 1974; Ziemer and Swanston, 1977; Burroughs and Thomas, 1977; Wu and others, 1979; Ziemer, 1981; and Gray and Megahan, 1981). These studies generally indicated that the continued stability of the soils on many steep, forested slopes depended largely on reinforcement from tree roots, especially when the soils were partially or completely saturated. After forest removal, the gradual decay of the tree roots often predisposes the forest soils to failure (ODF, 2000a). In other words, when the roots of dead trees lose their strength and water saturates the ground and runs off, the potential for landslides increases. Roots of brush may be critical to slope stability following clearcutting, especially in areas of shallow soils that are underlain by smooth, unfractured bedrock (Burroughs and Thomas, 1977). Areas most sensitive to loss of root strength and subsequent landslides commonly are steep (slopes of more than 70 percent), in concave positions, underlain by hard bedrock, and in areas of high rainfall (USDI, 1996). Although there is disagreement as to whether root strength is the primary factor in maintaining soil stability on forested slopes, most landslide specialists consider root strength a major factor in slope stability. The precise role is unclear, however, since there is still much to learn about the process by which slides occur (Skaugset, 1997).

Another area of ongoing discussion involves earlier landslide studies, which were completed in the 1970's, that considered the effects of harvest practices and roadbuilding techniques used in the 1950's. Logging with tractor skidders compacted and disturbed the soil. Large quantities of logging slash were burned at very high temperatures, removing shrubs and the organic layer of the soil. In recent years, though, soil disturbance has been minimized on steep slopes by using cable logging systems and reducing the amount of slash burning to retain the root system of shrubs. Less ground disturbance leads to some decline in the rate of erosion, but it is still unclear if it significantly reduces the frequency of landslides (Weaver, 1996).

Tree removal can have varying effects on slope stability, including alteration of the forest canopy, resulting in changes to water routes; alteration and accumulation of snow and alteration of snowmelt patterns; and loss of buttressing and arching by trees at the base of a potential landslide, which help to stabilize the slope. Falling timber and yarding logs with heavy equipment may cause a reduction in the soil infiltration rate due to compaction and an alteration of the macropore space in the soil, thus changing water routes (ODF, 2000a). Clearcutting, the primary timber harvesting method used in the Pacific Northwest, has been demonstrated to increase the frequency of slides on soils in the Coast Range Mountains that formed in colluvium over micaceous sandstone (fig. 63), have bedrock at a depth of less than 3 feet, and are typically slightly cohesive to moderately cohesive (Gresswell and others, 1979). Representative soils are the Blodgett, Bohannon, Chintimini, Digger, Fiverivers, and Umpcoos series. These soils are quite extensive throughout the central and southern portions of the Coast Range Mountains.

The thick forest vegetation and high infiltration rate of many forested soils protect the slopes from surface erosion. In many areas, forest vegetation plays an important role in stabilizing slopes and reducing the rate and frequency of mass erosion processes (Swanston and Swanson, 1976). Surface erosion occurs when detachable soil material on sufficiently steep slopes is exposed to overland flow and/or the impact of rainfall. Sediment introduced into streams from surface erosion generally is fine grained, and it can affect the quality of water and aquatic habitat. Raindrop splash, freezing and thawing, dry ravel, and biogenic processes such as windthrow and animal burrowing are natural causes of soil detachment. Gravity and overland

Figure 63.—Soil mass movement in an area of Digger-Umpcoos-Remote complex, 60 to 90 percent slopes.

flow of water are natural transport mechanisms for detached soil particles. Overland flow rarely occurs in areas under natural forest conditions because the soils generally are covered by an absorbent, protective layer of organic material. Vegetative cover, hillslope angle, soil texture as it influences the ability of the soil to hold together, infiltration rates, and climate are important factors affecting the inherent hazard of erosion of a site (USDI, 1996). Soils that have a high amount of organic matter commonly are subject to less erosion than are soils that have a low amount of organic matter. The high content of organic matter is associated with good soil structure, high porosity (both micropores and macropores), and high infiltration rates. These factors allow water to enter and move through the soil rather than to travel over the surface (ODF, 2000b).

The effects of fire on soils and the subsequent erosion and sedimentation have been studied and documented by many researchers. These effects include changes in soil biology such as microbes (Brady, 1974), fungi (Krammes and Osborne, 1969), and roots (Swanson, 1979); changes in organic matter content (Sidle, 1980; Youngberg, 1979); changes in physical and chemical properties of the soil, such as pore space (Berglund, 1976; Dyrness and others, 1957) and texture (Bennett, 1982); and reductions in the amount of material, such as vegetative cover (Martin, 1981) and woody debris (Mersereau and Dyrness, 1972), on the soil surface. It has been shown that the effects of fire can lead to dry ravel, sheet and rill erosion from overland flow, and soil mass movement.

Dry raveling, the tumbling downslope of detached soil particles under the influence of gravity, is the dominant surface erosion process on soils in the Coast Range Mountains that have slopes of more than 60 percent (Barnett, 1989). Raveling occurs when the cohesive forces that hold soil particles together on a slope are reduced, allowing downhill movement by gravity. Fire can strongly affect the stabilizing forces in a soil, thereby inducing or accelerating raveling. Intense fires generate strong

convective winds that physically dislodge the logging slash, resulting in the downslope movement of both woody debris and soil material. The intense heating of the organic matter layer has been shown to lower the cohesiveness of soil particles and the bulk density of the surface layer, creating a water-repellent soil material that is easily dislodged by raindrops (DeBano and others, 1967). The increase in runoff tends to fully subside within the first 1 or 2 years after a severe fire because the fire-induced water-repellency diminishes, overland flow rids soil pores of ash and other fine sediment, and plant cover regrows (Wondzell and King, 2003). Because the roots of trees and shrubs killed by fire may deteriorate very slowly, a severe burn may compromise the mechanical cohesion of soils in some forest stands for as long as 10 years. In other words, fire-induced landslides may occur long after the potential for runoff-initiated erosion has ceased (Youngberg and Wollum, 1976). Factors that affect the potential for ravel include vegetative cover, slope, and aspect (Bennett, 1982; Mersereau and Dyrness, 1972).

As discussed earlier in this section, sheet and rill erosion is minor if the soils are undisturbed. The soils have an exceptionally high capacity to conduct water even when saturated (Yee and Harr, 1977). The protective cover provided by the organic layer on the surface is an important factor in preventing sheet erosion because it increases infiltration and decreases runoff. Litter absorbs the impact of raindrops, thereby preventing destruction of soil aggregates, dislodging of particles, and compaction of macropores (Lowdermilk, 1930).

The most likely effect of fire on soil mass movement is the reduction of surface root strength due to the mortality of ground cover and shrubs (Swanston, 1970; Klock and Helvey, 1976). Debris torrents can occur in areas where surface flow, which increases after burning, incorporates large volumes of ravel and mobilizes debris released from behind burned logs in the channel (Swanson, 1979).

Slope failure is a natural process, and it can have both positive and negative effects on fish habitat. Management of slope failures as a result of road construction is well developed, but management of slope failures that are not related to roads is less well developed and is much more speculative with the current level of knowledge and understanding. There are, however, a number of more recent unconventional approaches being considered in landslide research. An example is the maintenance of functional riparian zones along channels where debris torrents may occur, which may mitigate their destructive force and increase the positive effect on forest ecosystems (IMST, 1999).

Potential watershed-scale effects of forest management may also influence both the quality and quantity of landslides. If a relatively large percentage of the high-risk areas in a given watershed is very young, the risk of landslide occurrence is higher. The quality of landslides can be affected if a relatively large portion of the land area in the upper reaches of a watershed is young. Younger forests do not have as many of the larger key pieces of wood in areas where landslides and debris flows occur as compared to that of older forests. Leaving trees and/or large pieces of downed wood in key areas at the time of harvest may help to mitigate the effects of forest management.

At this time, even with the knowledge from all the previous research, it is not known what the long-term effects are for erosional processes that continue over several timber rotations. It is very difficult to quantify the links between the effects of erosion and the physical stability and biological integrity of diverse forest sites (ODF, 2000b).

As mentioned previously, logging operations may cause soil compaction. These operations can also cause soil displacement and rutting on the forest floor and on roads, landings, and skid trails. Soil displacement occurs when the soil is gouged, scraped, or pushed from its natural position by any type of equipment. The displacement of soil can impede the recovery of vegetation, and long-term exposure of bare soil increases the potential for additional erosion, possibly leading to site

deterioration. Fine and moderately fine textured soils, such as clay, silty clay, sandy clay, clay loam, silty clay loam, and sandy clay loam, are less susceptible to displacement than are coarse textured soils, such as sand, sandy loam, and loamy sand. Soils that have a moderate or high content of rock fragments have slightly less of a tendency to be displaced. Steeper slopes (more than 30 percent) are more susceptible to displacement by heavy equipment.

Rutting from log loads or heavy equipment occurs on roads, landings, and skid trails that do not have a rock base when the soil is wet or saturated. Coarse textured soils, such as sand, fine sandy loam, and loamy fine sand, have a low risk of rutting. Fine and moderately fine textured soils, such as silt, clay loam, and clay, and soils that are high in content of organic matter have a high risk of rutting. Soils that have a rock fragment content of 20 percent or more have a lower risk of rutting. To minimize the potential for rutting, traffic areas should be rocked and/or seasonal restrictions should be applied. Rutting may also cause soil displacement and puddling.

Puddling occurs when tracked or wheeled equipment is used on wet soils. The soil structure becomes deformed when much of the pore space is reduced, causing the soil to become practically impervious to air and water. Since water infiltration is greatly reduced, runoff and the potential for soil erosion increase. Erosion usually starts on roads or landings, but the movement of water can also start the erosion process on noncompacted soils. Fine soil particles can become suspended in water, increasing the potential for sedimentation of streams. Soils that are loam, silt loam, or clay loam or are clayey have the greatest potential for puddling. To minimize damage, use of wheeled and tracked equipment should be restricted in areas where excessive puddling or rutting occurs.

Use of designated skid trails, which are temporary or permanent routes in the forest for hauling trees to a landing or road, also helps to minimize damage (fig. 64). Skid trails minimize damage from soil compaction, rutting, and puddling. If a ground-based harvester is used freely in a harvest unit, it is estimated that as much as 20 percent of that unit can be compacted. This can be cut in half by using designated skid trails at 100-foot spacings. Use of designated skid trails reduces the impact to the soil and retains good productivity on as much of the unit as possible (Garland, 1997).

Use of new high-technology harvesting equipment can also reduce the damage to soils. Most of this equipment has a lighter impact on the soils. Many harvest, buck, load, and haul in one operation. Low-pressure rubber-tired equipment can also be used to minimize soil compaction. Ground pressure from this type of equipment generally is less than 10 pounds per square inch, which is less than that of a human foot (Adams and Froelich, 1981).

Because soil erosion is a major concern, selecting a harvesting system that creates the least ground disturbance is important. Ground-based harvesting causes the most disturbance (estimated as much as 35 percent bare ground), high-lead (fig. 65) and skyline systems cause a moderate amount of disturbance (12 to 15 percent bare ground), and balloon/helicopter logging causes the least disturbance (as much as 6 percent bare ground).

In managed and unmanaged stands, disease and insects can attack and kill trees. The amount of damage varies from year to year. Generally, other factors weaken a tree, making it susceptible to insects and diseases. Some of these factors include heat stress, drought, snow, cold temperatures, frequent flooding, slow growth, or low vigor. Soil temperature and moisture and soil condition affect the occurrence and virulence of diseases.

Examples of the most common insects are Douglas-fir bark beetle (*Dendroctonus pseudotsugae*), fir engraver beetle (*Scolytus ventralis*), Ips bark beetle (*Ips pini*), and Sequoia pitch moth (*Synanthedon sequoiae*). Beetle attacks are a common occurrence, infesting and killing single trees or small groups of trees. Healthy trees

Figure 64.—Designated skid trails in an area of Bohannon-Preacher complex, 30 to 60 percent slopes.

generally can fight off light beetle attacks. Trees sense the intruding beetles and initiate a defensive mechanism. Pitch stops the movement of beetles in a tree, and then as the pitch is exuded, it moves them out of the tree. Weak or dying trees cannot fight off an attack and generally succumb quickly. If a moderate or high number of beetles attack a tree, it generally will succumb.

Trees are also susceptible to diseases, most of which (native ones) occur at endemic levels. On a cumulative basis over time, diseases can have a much higher deleterious effect. Some common diseases in the survey area are Armillaria root disease, Annosus root rot, laminated root rot, Swiss needle cast, Phomopsis canker, Dermea canker, and Melampsora rust. The root rot diseases are becoming more and more of a concern. This is due mostly to the planting, harvesting, and replanting of monoculture stands of Douglas-fir trees. These diseases are extremely hard to eradicate. They not only kill living trees but also survive in dead roots and the soil for years. Any susceptible tree that grows on the infested site will eventually be infected and die. Root-to-root contact is a major source of the spread of diseases.

Swiss needle cast (*Phaeocrytopus gaeumannii*), a disease that attacks Douglas-fir, has become a major concern in the Northwest coastal forests to as far inland as 12 miles. This needle disease has spread across hundreds of thousands of acres where Douglas-fir has been planted as a monoculture. Normally, needles are retained on trees 4 to 5 years. The disease causes needles older than 1 to 2 years to drop off the trees. This limits the amount of photosynthesis that can take place. The diameter and height of severely infected trees is drastically reduced. There are few options for controlling the disease on large forest operations. Fungicides control the disease, but

Figure 65.—High-lead logging system, which partially suspends logs as they are transported to a landing.

application on a large scale is very expensive. Planting multiple species, spacing trees to ensure good air circulation, and planting locally adapted trees may limit infection.

Canker diseases in general are not a serious problem. A canker is an area on a branch or tree trunk (cambium and bark) that is damaged by a disease. Canker diseases are endemic in forests and rarely reach epidemic proportions. They are most severe in timber plantations or ornamental plantings such as Christmas tree plantations. Dermea canker severely damages Douglas-fir trees, especially in young plantations. Trunk infection often girdles the tree, first killing the top and then eventually killing the entire tree. Phomopsis canker occurs sporadically and becomes a problem mainly when drought stress or other climatic conditions weaken the host tree. The disease mostly affects young trees. In natural stands it is not considered to be a serious problem, but in plantations it occasionally causes serious damage.

Hardwood tree species in the county are subject to a variety of insects and diseases, such as oak pit scale, gall wasps, loopers (caterpillars), rust diseases, verticullium wilt, and anthracnose (leaf blight).

Soil texture and drainage are a factor in root diseases. Moist or wet soils are a preferred environment for many root diseases. The moist or wet environment can occur in soils naturally and or as a result of compaction and/or the presence of a heavier subsoil, which slows down water drainage. Generally, soils that have a high content of clay (more than 35 percent) in the subsoil (B horizon) or substratum (C horizon) have slower internal drainage, creating an environment conducive to the presence of diseases. Soils that have a high water table, are ponded for long periods of time, or have a restrictive layer such as a claypan that perches water are susceptible to diseases. Trees planted in wet sites commonly are more susceptible to

diseases. Many microorganisms are opportunistic and will take advantage of any favorable situation within their environment.

Invasive species, introduced plants, and insects and diseases are all a concern. Because they are not inherent to the local environment, there are no natural control mechanisms; thus, they have the potential to spread uncontrollably. Unless controlled, they can become very aggressive and greatly diminish the populations of native plants and insects.

In tables 8 through 12, ratings are given for forest management practices. The ratings are both verbal and numerical.

Some rating class terms indicate the soil limitation or risk of damage by a forest management practice. *Slight* indicates little or no limitation or risk. *Moderate* indicates some limitation or risk. *Severe* indicates significant limitation or risk. *Very severe* indicates very significant limitation or risk.

Some rating class terms indicate the degree to which the soils are suited to a forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*.

Numerical ratings in the tables indicate the severity of individual limiting features. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00). No numerical value indicates 0.00. The numerical ratings for the potential for fire damage or seedling mortality indicate gradations between the point at which the potential is highest (1.00) and the point at which the potential is lowest (0.00).

In the following paragraphs, the forest management practices are listed and the rating class terms for each are given. More detailed information about the criteria used in the ratings is available in the “National Forestry Manual” (http://soils.usda.gov/technical/nfmanual).

Limitations Affecting Construction of Haul Roads and Log Landings

Description

Ratings reflect limitations affecting construction of haul roads and log landings.

Rating classes

- Slight—few if any limitations to construction activities.
- Moderate—one or more limitations that cause some difficulty for construction.
- Severe—one or more limitations that make construction very difficult or costly.

Suitability for Log Landings

Description

Ratings reflect the suitability of the soil at a forest site to serve as a log landing.

Rating classes:

- Well suited—few if any restrictions to the suitability of the site.

- Moderately suited—one or more restrictions reduce the suitability of the site.
- Poorly suited—one or more restrictions generally make use of the site very difficult or unsafe.

Soil Rutting Hazard

Description

Ratings indicate the hazard or risk of ruts forming in the upper soil layers as a result of operation of forest equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting.

Rating classes

- Slight—little if any rutting occurs.
- Moderate—rutting likely to occur.
- Severe—rutting occurs readily.

Hazard of Off-Road or Off-Trail Erosion

Description

Ratings indicate the hazard or risk of soil loss from off-road and off-trail areas after activities that expose the soil surface.

Rating classes

- Slight—erosion is unlikely under ordinary climatic conditions.
- Moderate—some erosion is likely; control measures may be needed.
- Severe—erosion is very likely; control measures for reestablishment of vegetation in bare areas and structural measures are advised.
- Very severe—significant erosion is expected; loss of soil productivity and offsite damage are likely; control measures are costly and generally impractical.

Hazard of Erosion on Roads and Trails

Description

Ratings indicate the hazard or risk of soil loss from unsurfaced roads and trails.

Rating classes

- Slight—little if any erosion is likely.
- Moderate—some erosion is likely; occasional maintenance may be needed; simple erosion control measures are needed.
- Severe—significant erosion can be expected; roads require frequent maintenance; costly erosion control measures are needed.

Suitability for Roads (Natural Surface)

Description

Ratings indicate the suitability for using the natural surface of the soil for roads for use by trucks to transport logs and other wood products from a site.

Rating classes

- Well suited—few if any restrictions for roads.
- Moderately suited—one or more restrictions limit the suitability for roads.
- Poorly suited—one or more restrictions generally make it very difficult or unsafe to use as a natural surface road.

Suitability for Hand Planting

Description

Ratings indicate the expected difficulty of hand planting.

Rating classes:

- Well suited—few if any restrictions to hand planting; planting rates are not affected.

- Moderately suited—one or more restrictions impede planting and reduce planting rates.
- Poorly suited—one or more restrictions severely impede planting and reduce planting rates.

Suitability for Mechanical Planting

Description

Ratings indicate the difficulty of planting trees or shrubs using a mechanical planter.

Rating classes

- Well suited—few if any restrictions to mechanical planting; planting rates are not affected.
- Moderately suited—one or more restrictions impede planting and reduce planting rates.
- Poorly suited—one or more restrictions severely impede planting and reduce planting rates.
- Unsuited—site factors and features prevent mechanical planting of seedlings.

Suitability for Use of Harvesting Equipment

Description

Ratings indicate the suitability for operating harvesting equipment.

Rating classes

- Well suited—few if any restrictions to equipment operability.
- Moderately suited—one or more restrictions reduce the effective and safe use of equipment.
- Poorly suited—one or more restrictions make the use of equipment impractical or unsafe.

Suitability for Mechanical Site Preparation (Surface)

Description

Ratings indicate the suitability of using surface-altering soil tillage equipment.

Rating classes

- Well suited—few if any restrictions to surface mechanical site preparation.
- Poorly suited—one or more restrictions reduce the effective and safe use of equipment.
- Unsuited—one or more restrictions generally prevent the effective and safe use of equipment.

Suitability for Mechanical Site Preparation (Deep)

Description

Ratings indicate the suitability of using deep soil tillage equipment.

Rating classes

- Well suited—few if any restrictions to deep mechanical site preparation.
- Poorly suited—one or more restrictions reduce the effective and safe use of equipment.
- Unsuited—one or more restrictions generally prevent a sufficient level of deep mechanical site preparation.

Potential for Damage to Soil by Fire

Description

Ratings indicate the potential for damage to soil nutrient, physical, and biotic characteristics by fire.

Rating classes

- Low—little negative impact to soil characteristics is expected.
- Moderate—negative impact to soil characteristic may occur.
- High—negative impact to soil characteristics is expected.

Potential for Seedling Mortality

Description

Ratings indicate the likelihood of death of naturally or artificially propagated tree seedlings as influenced by soil characteristic, physiographic features, and climatic conditions.

Rating classes

- Low—seedlings are expected to develop normally and become established.
- Moderate—root development is sufficiently retarded to cause death of some seedlings (as many as 1 in 3), and establishment of surviving seedlings is delayed.
- High—seedlings are not expected to survive (at least 2 in 3 die) unless special treatment or management is used.

Recreation

Recreation is important to the economy of Benton County. The natural resources of the county, of which soils are an important part, are used for many recreational activities. The county encourages tourism and has many public recreational facilities and special events catering to tourists. Besides camping areas, there are a number of motels and resorts to accommodate visitors.

The county offers compelling scenery and diverse recreation opportunities, including fishing, hunting, boating, camping, use of recreational vehicles, hiking, biking (both road cycling and mountain biking), dirt bike riding on maintained trails, bird watching, and horseback riding. For those more inclined toward recreational sports, whether a team sport or an individual sport such as golf or running, many public and private facilities are available.

Many recreational activities are centered either on the Alsea River in the western part of the county or on the Willamette River at the eastern edge of the county. Activities include salmon and steelhead fishing, canoeing, rafting or pleasure boating, hiking along the rivers, or picnicking at one of the many day use areas. Trout fishing and swimming are common activities in many of the streams and creeks adjacent to these rivers. Warmwater species, such as bass, bluegill, and crappie, offer challenges to those more likely to fish the sloughs and oxbows of the Willamette River throughout the year.

The mountainous areas of western Benton County provide opportunities for hunting big game and upland birds as well as many other recreational uses such as camping and hiking. A variety of wildlife is present throughout the county for observing, photographing, and hunting. Among them are black-tailed deer; Roosevelt elk; black bear; migratory waterfowl; upland game birds, including quail, grouse, and wild turkey; band-tailed pigeon; bald eagle; osprey; ducks; doves; bobcats; mountain lion; beaver; muskrat; coyote; raccoons; river otter; amphibians; and reptiles.

Many Federal, State, county, and private parks and campgrounds are open to the public for recreation. The camping facilities available include everything from backpacking areas to recreational vehicle parks with full hookups. There are also a few roads and other areas open for off-road vehicle use and dispersed recreation. The county has more than 80,000 acres of public land administered by the Siuslaw National Forest and the Salem District of the Bureau of Land Management (BLM). Another 20,000 acres is administered by the State of Oregon.

Marys Peak, at an elevation of 4,097 feet, is the highest point in Oregon's Coast

Range Mountains and the most prominent peak viewed westward from Corvallis. On a clear day both the Pacific Ocean to the west and many of the Cascade peaks to the east across the Willamette Valley can be seen. There are several areas of historical, botanical, and geological interest to explore. Several hiking trails in the Marys Peak Trail System can be accessed from Marys Peak Campground in the Siuslaw National Forest (http://www.fs.fed.us/r6/siuslaw/recreation/tripplanning/maryspeak/index.shtml).

Alsea Falls (fig. 66), on the South Fork of the Alsea River, is within the popular

Figure 66.—Alsea Falls.

Alsea Falls Recreation Area (administered by BLM), which includes a campground and picnic area with a variety of recreational opportunities in proximity. Missouri Bend Recreation Site (administered by BLM) on the Alsea River offers river access to boaters fishing for salmon and steelhead. William L. Finley National Wildlife Refuge (http://fws.gov/pacific/WillametteValley/), about 10 miles south of Corvallis, offers birding enthusiasts the opportunity to view a wide variety of bird species in a number of different ecological habitat types. The primary objective of the refuge is the protection and management of wintering habitat for dusky Canada geese. Other migratory and resident animals also use the refuge. Several species of ducks are present during migration, and wood duck and hooded merganser commonly nest in the refuge in summer. Ruffed grouse, ring-necked pheasant, and California quail also are present. Columbian black-tailed deer is common as are many species of small birds and mammals. The refuge encompasses 5,325 acres of Oregon oak and maple woodland, Oregon ash thickets, second-growth Douglas-fir forests, bushy hedgerows, marshes, meandering creeks, open meadows, pastures, and cultivated fields. Other uses include photography and environmental education. A self-guided interpretive trail has been developed for hikers. Some hunting of migratory birds and resident game is allowed at specific times during the year.

The E.E. Wilson Wildlife Area, which is administered by the Oregon Department of Fish and Wildlife, offers a diversity of Willamette Valley habitat types. Recreational opportunities include hunting of pheasants, duck, deer, rabbit, and quail. A fishing pond is stocked with trout in February through June. A variety of upland game birds can be viewed all year. An interpretive trail is available for interested users. McDonald Research Forest, northwest of Corvallis, is a 7,000-acre forest that is used for research endeavors by Oregon State University. Many trails in the forest can by used by horseback riders, mountain bikers, and hikers, but use is limited to hiking in winter because of the muddy conditions (http://www.localhikes.com/Hikes/DansTrail_1890.asp). Peavy Arboretum is a popular gateway to explore the further reaches of McDonald Research Forest, and it has provided an outdoor teaching laboratory for generations of children and adults. Its history is rich, with ancient Native American sites, the original Oregon State Forest Nursery, and a Civilian Conservation Corps camp used in the 1930's (http://www.cof.orst.edu/cf/forests/arboretum). It is currently being developed to provide examples of all of the major eco-zones in Oregon (http://www.cof.orst.edu/cf/forests/mcdonald).

Benton County Parks and Recreation Department manages more than 45 parks and recreational areas, ranging from unimproved sites such as Irish Bend to fully improved areas such as Adair Park and Bellfountain Park (http://www.co.benton.or.us/parks/compare.htm). The Parks and Recreation Department also has responsibility for developing and maintaining diverse areas. Beazell Memorial Forest in Kings Valley is managed for environmental education and research opportunities. It is a demonstration forest and open space area on which progressive ecosystem management practices are used to protect, conserve, and restore the natural scenic outdoor recreation and wildlife values. Fitton Green Open Space Natural Area will have environmental interpretation information and trails when fully implemented (fig. 67). Fort Hoskins Historic Park offers picnicking, educational interpretive displays, and self-guided trails that allow users to access the varied history, vegetation, and views of a historic resource. Jackson-Frazier Wetland, northeast of Corvallis, is open throughout the year. A 3,400-foot-long ($^2/_3$ of a mile) accessible wooden boardwalk winds through the wetland, allowing visitors to see many plant communities and habitats. Interpretive signs explain different aspects of the park's natural history and watershed. A few rare plant species are in the wetland, such as Bradshaw's lomatium, an endangered species (fig. 68), and Nelson's checkermallow, a threatened species (fig. 69). Bald Hill Park, managed by the City of

Figure 67.—Looking to the west toward Marys Peak from the Fitton Green Open Space Natural Area. Witzel soils are in foreground; Price, Ritner, and MacDunn soils are in midground; and Caterl, Laderly, and Murtip soils are on the slopes of Marys Peak in background.

Figure 68.—Bradshaw's lomatium.

Figure 69.—Nelson's checkermallow.

Corvallis, has more than 8 miles of hiking trails and paved multiuse paths that are part of the Bald Hill Trail System.

Other recreational opportunities include adventures such as taking the Mid-Willamette Valley Historic Covered Bridge Tour, riding the Buena Vista Ferry, or journeying along the route of the many wineries located throughout the Willamette Valley. Several farms and stables provide horseback trail rides of various durations.

Golfers have several public and private courses from which to choose. The middle part of the Oregon Coast is only an hour drive from Corvallis. These scenic coastal areas offer many different recreational activities. Tidepooling, hiking the Oregon Coast Trail, walking along the beach, camping, storm watching, agate hunting, crabbing, surfing, sail boarding, whale watching, surf fishing, clam digging, and watching the ever-changing rocky coastline and beaches are some of the recreational opportunities to be experienced and enjoyed. There are also several State parks on the coast. Deep sea fishing and salmon fishing are quite popular recreational pursuits in summer.

The soils of the county are rated in tables 13 and 14 according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in these tables can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Wildlife habitat consists of a combination of necessary resources—water, food, shelter, and environmental conditions—that allow a given species to survive and reproduce. Vegetation plays a key role in providing these basic biological needs. Major vegetation types such as forestland, shrubland, grassland, and wetland typically attract wildlife species uniquely adapted to the particular environment. Other resident species may thrive in a range of habitat types. The plant and animal species that each of these major vegetation types support are the measure of its biological diversity, and this factor is the critical element in maintaining viable ecosystems (Loy and others, 2001). Native plant communities consist of a variety of vegetation, most of which is valuable to wildlife. Habitat for wildlife can be created or improved by

planting appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The western part of Benton County is mountainous and heavily timbered; the main land use is forestland. The hills, broad terraces, stream terraces, and flood plains of the Willamette Valley have a much wider variety of land uses, ranging from agriculture to urban and residential development. The temperature zones in the county range from those of the warm lower elevations of the Willamette Valley to the cold higher elevations of the Coast Range Mountains. Such diverse environmental conditions provide many types of wildlife habitat for an abundance of wildlife species.

The kinds and numbers of wildlife species in the county generally are related to the kinds of soils. This relationship is indirect and influenced by the varied climatic zones, topography, land use, parent material, and plant communities. Oregon has a rich diversity of wildlife—426 species of native terrestrial vertebrates breed in Oregon and 91 additional species use the habitat in the state in winter or during migration (Puchy and Marshall, 1993). Another 98 species use the habitat occasionally, and 27 species have been introduced. The total number of wildlife species in Oregon is 642, or more than 42 percent of all terrestrial vertebrates found in the United States and Canada (Csuti and others, 1997).

Despite this abundance of wildlife, the only comprehensive efforts to document the distribution, habitat, and natural history of most of Oregon's wildlife species are more than a decade to more than half a century old. This has led to several recent efforts to update the knowledge base and understanding of wildlife species and their habitat while reviewing basic concepts and current thinking regarding these relationships. This data could be used in local, regional, and state planning efforts (Johnson and O'Neil, 2001).

The present research work evolved from the efforts begun in 1988 by the National Biological Service, the Oregon Department of Fish and Wildlife (ODFW), the Oregon National Heritage Program (ONHP), and other cooperating agencies and organizations to determine the distribution of two components of Oregon's biological diversity, vegetation cover and associated wildlife species. This program, known as "Gap Analysis," was intended to provide wildlife managers with the information they needed to anticipate and prevent loss of biodiversity (Csuti and others, 1997). At least 133 vegetation cover types were recognized in this initial work, of which 14 are in Benton County (Kagan and Caicco, 1992; Kagan and others, 1999). These vegetation types were grouped into 30 wildlife habitat types recognized in Oregon, of which six are in Benton County (O'Neil and others, 1995). Additional information can be accessed online at http://www.gap.uidaho.edu/gap.

Current research has synthesized the previous efforts with updated information and now recognizes 32 wildlife habitat types that support 541 native breeding species and 119 Pacific Northwest vegetation, land use, and marine groupings (Johnson and O'Neil, 2001). Eight of these habitat types are in Benton County, The following is a list of the habitat types in the county, generally from east to west (Loy and others, 2001).

1. Open Water—Lakes, Rivers, Streams
2. Herbaceous Wetlands
3. Agriculture, Pastures, and Mixed Environs
4. Urban and Mixed Environs
5. Westside Oak/Dry Douglas-fir Forest and Woodlands
6. Westside Riparian Wetlands
7. Westside Lowlands Conifer-Deciduous Forest
8. Montane Mixed Conifer Forest

This section discusses these habitat types and correlates them to the general soil map units in this survey.

Open Water—Lakes, Rivers, and Streams occurs in areas throughout Benton County. Most of the lakes, ponds, and reservoirs are man-made, such as the ponds on Fischer Island east of Corvallis created from the extraction of gravel, Emry Moore Pond in Kings Valley, Thompson Lake southwest of Blodgett, North Fork Reservoir in the City of Corvallis Municipal Watershed, and a multitude of ponds on the farms and ranches throughout the county. Some lakes, such as Asbahr Lake, McBee Lake, Thornton Lake, and Winkle Lake, are formed when old river or stream channels, oxbows, or sloughs either become obstructed or dry up enough to impound the remaining water body because of a lack of drainage outlets. Rivers and streams in the Willamette Valley are warm, productive, and turbid. They contain the greatest diversity of fish species in the county. The Willamette River and its tributaries are used extensively by salmonid fish species such as Chinook salmon and steelhead trout. Warmwater species such as bass, crappie, and bluegill prefer the sloughs and oxbows associated with slower moving currents. These bodies of water are characterized by deep pools and highly embedded stream bottoms with a claypan and muddy substrate. Rivers and streams in the Coast Range Mountains typically have more runs and glides with fewer pools; however, these bodies of water do not contain as great a diversity of fish species as do those in the Willamette Valley. A variety of salmonid species such as Chinook and Coho salmon and steelhead, rainbow, and cutthroat trout are in these waters. An economically significant recreational fishery has developed as a result of the presence of these species. The overall productivity of fisheries in the Willamette River Basin and its subbasins in Benton County is dependent on the temperature and flow of water from the higher elevations in the county and from surrounding areas.

Lakes, ponds, and reservoirs commonly are adjacent to the Herbaceous Wetlands habitat type, while rivers and streams are associated with or adjoin the Westside Riparian Wetlands habitat type. The major natural disturbances associated with this habitat type are the seasonal and decadal variations in precipitation patterns and flooding. The anthropogenic impacts of management activities are numerous. Municipal sewage effluent released into bodies of water can cause eutrophication; plant biomass increases and light transmission into the water is dramatically decreased or totally blocked off. This is due to the unnaturally high concentration of nutrients, especially phosphates and nitrates, that promote excessive growth of algae (algal blooms). Decomposition of the algae depletes available oxygen, causing death of other organisms. Irrigation projects may result in flooding of areas downstream. Removal of water for irrigation can decrease natural salinity and change the associated plants and animals. Removal of gravel results in reduction of spawning areas for anadromous fish. Overgrazing of riparian areas and loss of vegetation due to logging result in increased water temperatures and excessive siltation in rivers and streams. Incorrectly installed culverts may act as barriers to migrating fish and may contribute to erosion and siltation downstream. Construction of dams is associated with water quality, fish passage, competition between species, loss of spawning areas because of flooding, and declines in native fish populations. Historically, the rivers and streams of the Willamette Valley contained more braided multichannels. Flood-control measures such as channel straightening, diking, and removal of streambed material along with urban and agricultural development have all contributed to a loss of oxbows, sloughs, river meanders, and flood plains (Johnson and O'Neil, 2001).

Agricultural, industrial, and sewage runoff that includes salts, sediment, fertilizer, pesticides, and bacteria harm aquatic species. Timber harvesting practices such as clearcutting may result in excessive intermittent runoff and increased erosion and siltation of streams as well as diminished shade. These conditions result in higher water temperatures, fewer terrestrial and aquatic food organisms, and increased predation.

Clearcuts also alter snow accumulation patterns and increase the size of peak flows during periods of snowmelt. Poorly designed forest roads can be a major contributor to sedimentation of streams. The riparian vegetation along streams and rivers should be protected from excessive disturbance where possible to maintain or improve water quality. Plant cover stabilizes streambanks and riverbanks, reduces water temperatures, and minimizes deposition of sediment into rivers and streams.

All of the general soil map units in Benton County have many areas of open water habitat. Representative wildlife species include amphibians such as red-legged and Oregon spotted frogs; reptiles such as painted and western pond turtles; a variety of bird species including American dipper, bitterns, herons, coots, killdeer, raptors such as eagles and ospreys, and waterfowl such as ducks and geese; and mammals such as American beaver, muskrat, and northern river otter. This habitat provides important breeding areas and travel corridors for amphibians, reptiles, waterfowl, and raptors.

Herbaceous Wetlands habitat type is in permanently flooded areas that commonly are associated with oxbows and abandoned sloughs. Seasonally flooded to semipermanently flooded wetlands are in areas where standing freshwater is present during part of the growing season and the soils remain saturated throughout the season. Typically, this habitat is flat to nearly level and has stream or river channels or open water areas. Herbaceous Wetlands habitat commonly is in a pattern with Westside Riparian-Wetlands habitat along stream corridors. McFadden Marsh (fig. 70) and Muddy Creek in William L. Finley National Wildlife Refuge are a good example of this pattern, where herbaceous wetland habitat is in the marsh and riparian habitat is on the flood plain and stream terraces of Muddy Creek. The climate is characterized by warm, wet winters and hot, dry summers.

The herbaceous wetland habitat typically is a mix of emergent herbaceous plants with a grasslike lifeform. These areas commonly are associated with deep water or shallow water habitat types, which support floating or rooting aquatic forbs. Various wetland plant communities are in mosaics or in nearly pure stands of a single species. Cattails are abundant, and several bulrush species occur either as almost

Figure 70.—Geese in McFadden Marsh in an area of Waldo silty clay loam, 0 to 3 percent slopes.

pure stands or in mosaics with cattails and sedges. A variety of sedges typically are in this habitat. Aquatic beds are a part of this habitat, and they support a number of rooted aquatic plants, such as yellow pond lily, and nonrooted, floating plants, such as pondweeds and duckweeds. Emergent herbaceous broadleaf plants, such as water parsley and bladderworts, grow in areas of permanent and semipermanent standing water. Shrubs or trees are not common in this herbaceous habitat, although willow and other woody plants may be along margins, in patches, or along streams running through these areas.

Most wetlands are resistant to fire. In those areas that are dry enough to burn, fires usually occur in fall. Since most wetland plants are sprouting species, they recover quickly. Fire suppression can lead to invasion of woody species in the drier areas of herbaceous wetland habitat. An example in the Willamette Valley is the encroachment and establishment of Oregon ash in the wet prairie areas (Johnson and O'Neil, 2001). Beavers play an important role in creating ponds and other impoundments in this habitat. Trampling and grazing by large native mammals, such as elk and deer, is a natural process that creates habitat patches and allows for tree and shrub encroachment and possible successful establishment.

Direct alteration of hydrology, such as damming, or indirect alteration of hydrology, such as roadbuilding, results in changes in the amount and pattern of herbaceous wetland habitat. Heavy livestock grazing or trampling results in a decrease in some plant species, such as aquatic sedges and tufted hairgrass, and an increase in others, such as several rushes, marsh cinquefoil, and many introduced species of grasses and forbs. Herbaceous wetlands have been steadily declining in recent decades as agricultural and urban and residential land uses have become more dominant.

Portions of general soil map units 1 through 5 have areas of the Herbaceous Wetlands habitat type. Soils that have physical properties such as a claypan or high seasonal water table and support hydrophytic vegetation typically are hydric and are associated with wetland habitat. In Benton County these include Aquents; Awbrig, Bashaw, and Conser soils; Fluvaquents; and Quosatana, Pyburn, Waldo, Wapato, Wasson, and Zyzzug soils.

Representative wildlife species include warmwater fish species such as bass and crappie; amphibians such as tailed frog and western toad; reptiles such as painted and western pond turtles; a variety of bird species including bitterns, herons, coots, killdeer, red-winged and yellow-headed blackbirds, raptors such as eagles and ospreys, and waterfowl such as ducks, geese, and mergansers; and mammals such as American beaver, muskrat, and northern river otter. The aquatic habitat associated with the soils in this group is extremely important for the natural production of fish species. Plant cover stabilizes streambanks and riverbanks, reduces water temperatures, and minimizes the deposition of sediment into rivers and streams.

Agriculture, Pastures, and Mixed Environs habitat type includes all kinds of cultivated land (fig. 71), including areas used as pasture and for row crops, nonirrigated and irrigated cereal crops, alfalfa, and orchards. Agricultural habitat occurs within a matrix of other habitat types at low to middle elevations, including the Westside Lowlands Conifer-Deciduous Forest, Westside Oak/Dry Douglas-fir Forest and Woodlands, Herbaceous Wetlands, Westside Riparian Wetlands, and Urban and Mixed Environs habitat types. This habitat commonly is dominant in nearly level to gently sloping areas, in areas of well-developed soils, in broad river valleys such as the Willamette Valley, and in areas with access to abundant irrigation water. Examples include the areas used for row crops on Stahlbush and Kiger Islands and in other parts of the county, the areas used for cereal grain in the Alsea and Willamette Valleys, the grass seed fields south of Corvallis, the livestock pastures throughout the county, and the Christmas tree farms on the lower slopes of the Coast Range foothills. Unlike other habitat types, agricultural habitat typically is characterized by

Figure 71.—Agriculture, Pastures, and Mixed Environs habitat type in an area of McAlpin silty clay loam, 0 to 3 percent slopes, in foreground. Santiam silt loam, 8 to 20 percent slopes, in midground, and Jory silty clay loam, 20 to 30 percent slopes, in background.

regular landscape patterns (squares, rectangles, and circles) and straight borders because of ownership boundaries and multiple crops grown in a region. Edges can be abrupt along habitat borders within agricultural habitat and with other adjacent habitats (Johnson and O'Neil, 2001). This habitat type is structurally diverse because of the variety of cover types, which range from annual grasses and row crops to mature orchards. Structural diversity of agricultural habitat is increased at the local level by the presence of noncultivated or less intensely managed vegetation such as fencerows, roadside vegetation, and field borders. A variety of native wildlife species use agricultural land, especially where there are small remnants of riparian vegetation or other native or introduced trees and shrubs in the habitat matrix. The climate is characterized by warm, wet winters and hot, dry summers.

Because agricultural habitat is an anthropogenic cover type, the dominant characteristic is a regularly scheduled pattern of management activities and vegetation disturbance. Most areas recognized as agricultural land receive additions of fertilizer and pesticides and are subject to vegetation removal (harvest) and manipulation (tillage operations that result in soils that are bare or have 100 percent of the surface covered with litter). Harvesting of cultivated cropland, Christmas tree plantations, and nurseries and mowing or haying of improved pasture substantially change the structure of the vegetation. All of these practices prevent agricultural areas from reverting to native vegetation. Excessive grazing of unimproved pastures may increase the presence of weedy or invasive plant species.

Portions of general soil map units 1 through 13 support the Agriculture, Pastures, and Mixed Environs habitat type. Typical soils include the Abiqua, Alsea, Amity, Apt, Bellpine, Camas, Chapman, Chehalis, Chismore, Cloquato, Coburg, Dixonville, Dupee, Eilertsen, Elsie, Gelderman, Gellatly, Holcomb, Honeygrove, Jory, Malabon, McAlpin, McBee, McDuff, Meda, Newberg, Peavine, Pilchuck, Santiam, Treharne, Wellsdale, Willakenzie, Willamette, Witham, and Woodburn series.

Representative wildlife species include amphibians such as bullfrog and western toad; reptiles such as common kingsnake and gopher snake; a variety of bird species including barn owls, short-eared owls, great blue heron, horned lark, swallows, jays, ravens, crows, western bluebird, western meadowlark, robins, a variety of songbirds such as finches, sparrows, and warblers, game birds such as ring-necked pheasant, mourning dove, and California quail, raptors such as northern harrier, red-tailed hawk, and American kestrel, and waterfowl such as Canada geese (fig. 72); and mammals and rodents such as bats, coyotes, deer, rabbits, squirrels, pocket gophers, several species of mice and voles, raccoons, opossums, and skunks. The quality and temperature of water in streams is very important to salmonids.

Urban and Mixed Environs is another anthropogenic habitat type which includes all areas that are used dominantly for urban and industrial development, even if there are remnant patches of native vegetation scattered within the mosaic. The cities of Corvallis and Philomath are examples of this habitat type. Urban development occurs within or adjacent to nearly every other habitat type recognized in Oregon, and it commonly replaces habitat that is valuable for wildlife. Urban development creates a unique physical setting. Temperatures are elevated, background lighting is increased, and wind velocities are altered (usually reduced). This habitat type typically is in areas with little if any slope. The climate is characterized by warm, wet winters and hot, dry summers.

The highest urban densities normally occur in the lower elevations along natural or manmade transportation routes, such as rivers, railroad lines, coastlines, and interstate highways. Because early settlers often modified the original landscape for agricultural purposes, many urban areas are surrounded by agricultural and grazing land (Johnson and O'Neil, 2001). The original habitat is drastically altered in urban environments and is replaced with buildings, impermeable surfaces, and typically plantings of nonnative species. Many structural features of the historic vegetation,

Figure 72.—Geese in an area of Wapato silty clay loam, 0 to 3 percent slopes.

such as snags, dead and downed wood, and brush piles, commonly are completely removed from the landscape. Understory vegetation may be totally absent, or if present, it commonly is short and single layered. Many urban areas in western Oregon have a considerable amount of natural vegetation and support a diverse fauna. This is true of the city of Corvallis and the campus of Oregon State University. Urban areas are also used for shelter by wintering birds during periods of inclement weather.

Portions of general soil map units 5 through 11 have areas of the Urban and Mixed Environs habitat type. Typical soils include the Amity, Bellpine, Coburg, Conser, Dayton, Dixonville, Dupee, Gellatly, Jory, Malabon, Santiam, Wellsdale, Willakenzie, Willamette, Witham, and Woodburn series.

Wildlife species found in this habitat include amphibians such as bullfrog and western toad; reptiles such gopher snakes and some species of garter snakes; a variety of bird species including barn owls, short-eared owls, great blue heron, horned lark, swallows, jays, ravens, crows, western bluebird, western meadowlark, robins, a variety of songbirds such as finches, sparrows, and warblers, raptors such as American kestrel, and waterfowl such as Canada geese; and a variety of small mammals and rodents such as bats, rabbits, squirrels, pocket gophers, several species of mice and voles, raccoons, opossums, and skunks.

Westside Oak/Dry Douglas-fir Forest and Woodlands habitat type occurs dominantly on high terraces, alluvial fans, and hills along the margins of the Coast Range Mountains, adjacent to the Willamette and Alsea Valleys. This habitat has several geographic variants, of which two are in Benton County. Oregon white oak and ponderosa pine associations are on flood plains to low elevation hills in the driest parts of the county. Small numbers of Douglas-fir may be in these plant communities. Examples include William L. Finley National Wildlife Refuge, Oak Hill near the Polk-Benton County line, Witham Hill west of Corvallis, the valley floor in Alsea and Kings Valleys, and most of the farms and ranches on the broad valley terraces from the Willamette River west to the forested foothills of the Coast Range Mountains. The dry Douglas-fir forests, those without oak and pine, are on the hills surrounding the Willamette and Alsea Valleys. Most of McDonald-Dunn Research Forest of Oregon State University is typical of this habitat as are the Cardwell Hills between Philomath and Kings Valley and the hills in the immediate vicinity of Dawson south to Glenbrook, including McCloskey Ridge. Topography ranges from nearly level to steeply sloping with aspects tending toward the south or west. Soils on dry sites commonly are shallow or moderately deep over a restrictive layer such as bedrock or a claypan and have a large amount of rock fragments in the soil profile or are deep or very deep and excessively drained. The shallow or moderately deep soils typically are on low hills, and the deep or very deep soils are on flood plains.

This habitat type is either in a mosaic with or adjacent to the Westside Lowlands Conifer-Deciduous Forest, Westside Riparian Wetlands, Urban and Mixed Environs, and Agriculture, Pastures, and Mixed Environs habitat types. Inclusions of Open Water—Lakes, Rivers, and Streams and Herbaceous Wetlands habitat types also occur in minor amounts. The climate is characterized by warm, wet winters and hot, dry summers. Land use of this habitat type includes forestry (usually small-scale woodland owners), livestock grazing, and low-density rural residential and urban development.

This habitat type consists dominantly of evergreen conifers, deciduous broadleaf trees, evergreen broadleaf trees, or some mixture of conifers and broadleaf trees. Structure of the canopy varies from single-layered to multilayered. Where present, large conifers commonly tower over the broadleaf trees in mixed canopy stands. Large snags and logs are less abundant than in other westside forest habitat types; however, they can be prominent in old stands that have not been logged. Understory communities vary, though some combination of grasses, shrubs, ferns, and forbs is

typical. Deciduous broadleaf shrubs are the dominant plants. Early successional stand structure varies depending on understory species and whether the stand was initiated following fire or logging (Johnson and O'Neil, 2001).

Oak trees influence the abundance and distribution of wildlife species. Shade provided by a woodland canopy offers an escape from summer heat, which allows warm-blooded animals to conserve energy. Woodland foliage also provides important hiding cover for wildlife on landscapes dominated by agricultural fields and pastures. Trees in riparian areas can also reduce water temperatures and improve stream conditions for fish. Leaves contribute to wildlife habitat, even when they are no longer on the tree. Fallen leaves provide a source of organic litter, an important microhabitat for amphibians and reptiles. In oak savannas and agricultural areas, trees serve as perches for birds of prey. Many birds and mammals use tree cavities for nesting and roosting or as dens. Downy woodpecker, western bluebird, and western gray squirrel are a few examples (Vesley and Tucker, 2004).

Perhaps the greatest contribution of oaks to wildlife is the production of acorns, which are large, edible seeds that have a high calorie content and are an important food resource in fall and winter when other forage becomes scarce. A good crop of acorns can boost survival and reproduction rates, permitting some wildlife to attain greater populations than would otherwise be possible.

In areas of the Westside Oak/Dry Douglas-fir Forest and Woodlands habitat type, the canopy commonly is dominated by either Douglas-fir or Oregon white oak. Ponderosa pine is important in the southern Willamette Valley as a codominant species with white oak. Grand fir is codominant with Douglas-fir in some areas, and Oregon ash is codominant with white oak in riparian areas. Western hemlock and western redcedar generally cannot regenerate successfully because of the dry climatic conditions. This lack of regeneration of shade-tolerant trees in combination with understory indicators such as Pacific poison oak, common snowberry, California brome, and blue wildrye help to distinguish dry Douglas-fir forests from Douglas-fir stands on mesic sites, which are part of the Westside Lowlands Conifer-Deciduous Forest habitat type. Regeneration generally consists of Douglas-fir and less commonly, grand fir.

In the Oregon white oak and ponderosa pine plant associations, deciduous shrubs that commonly are dominant in the understory include Pacific poison oak, common snowberry, baldhip rose, and trailing blackberry. Where conifers are dominant in the canopy, common deciduous shrubs present in the understory include creambush oceanspray, Saskatoon serviceberry, and beaked hazelnut. Evergreen shrubs or vines, which occur in forest habitats that have dominantly conifers in the canopy, include salal, cascade Oregongrape, and hairy honeysuckle. Native grasses that typically are dominant or codominant in the understory include western fescue, California brome, Alaska oniongrass, blue wildrye, and long-stolen sedge. Kentucky bluegrass is a major nonnative grass species that tends to become dominant in oak woodland understory communities. Western swordfern and to a lesser extent, western brackenfern sometimes are codominant in the understory, particularly in areas that formerly supported grassland and savannas. Many forbs are characteristic of these dry sites; they commonly are abundant and diverse, but are not dominant.

Fire is the major natural disturbance of this habitat. Prior to settlement of the Willamette Valley, the frequency of fires probably ranged from every few years to once every 50 to 100 years and the fires were of low to moderate severity. The frequency of fires has been greatly reduced in the last 100 years, as the human population has sought to put out wildfires as they occur.

Many of these forests and areas of woodland were formerly either grassland or savannas that probably burned frequently, thus preventing trees to become dominant. Other areas were woodland to semi-open forests that burned moderately frequently, as suggested by the relict stands of old-growth Douglas-fir. The dominant trees in this

habitat establish most abundantly after fires. Moderate-severity fires kill many trees but also leave many alive, creating opportunities for establishing new trees and increasing structural complexity. Oaks resprout after fire if they are not top-killed. Without periodic fires, most oak-dominated stands will eventually convert to Douglas-fir forests. Distribution of acorns by animals is thought to be important in the dispersal and development of oak woodlands (Johnson and O'Neil, 2001).

Clearcutting and other logging practices tend to reduce the structural complexity of the tree canopy and the abundance of large woody debris. Dry Douglas-fir forests are well suited to alternative silvicultural practices such as uneven-aged management or maintenance of two-storied canopies. Oaks typically will resprout after logging, and thus they tend to increase in importance relative to conifers in mixed canopy stands. Selective harvesting of Douglas-fir within oak stands can prevent long-term loss of oak-dominant forests. With the exclusion of fire, most forest and woodland stands have increased in tree density and the grassy understory has been replaced by deciduous shrubs. Moderate to heavy grazing or other significant ground disturbance, especially in areas of grassy understory, leads to an increase in undesirable nonnative invader species, many of which are now abundant in stands that have a grassy understory or previously had a grassy understory (Johnson and O'Neil, 2001).

This habitat is relatively limited and currently is declining in extent and condition. With the cessation of regular burning about 150 years ago, many areas of grassland and savannas were invaded by a higher density of trees and shrubs and thus converted to a different habitat type. Large areas of this habitat have been transformed into urban and agriculture habitat types. Most of what remains of this habitat type has been considerably degraded by invasion of exotic species or by forest management practices that result in loss of structural diversity in the canopy. Continuing threats to this habitat include urban and residential development, increase and spread of nonnative species, and fire suppression, especially in the oak woodlands.

Several general soil map units have areas of the Westside Oak/Dry Douglas-fir Forest and Woodlands habitat type. In areas where Oregon white oak and ponderosa pine communities are on landscapes from flood plains to high terraces and alluvial fans, this habitat is represented by general soil map units 1, 2, 3, 5, 6, 7, and 8. The dry Douglas-fir forests (without oak and pine), which occur on the hills surrounding the Willamette and Alsea Valleys, are representative of general soil maps units 9 through 12. Soils typical of the white oak and ponderosa pine associations include Abiqua, Alsea, Amity, Briedwell, Chehalis, Chehulpum, Coburg, Dayton, Hazelair, Malabon, McAlpin, Newberg, Panther, Pengra, Philomath, Salem, Santiam, Willamette, Witham, Witzel, and Woodburn series. Soils representative of the dry Douglas-fir forests include the Bellpine, Dixonville, Dupee, Gellatly, Jory, MacDunn, Nekia, Price, Ritner, Wellsdale, and Willakenzie series.

Wildlife species commonly found in the white oak and ponderosa pine associations include amphibians such as northwestern salamander, rough-skinned newt, western toad, and red-legged frog; reptiles such as southern alligator lizard, western fence lizard, robber boa, ringneck snake, common kingsnake, garter snakes, and western rattlesnake; a variety of bird species including barn owls, western screech owl, northern pygmy owl, red-breasted sapsucker, acorn woodpecker, hairy woodpecker, swallows, jays, ravens, crows, western bluebird, western meadowlark, robins, a variety of songbirds such as finches, sparrows, and warblers, game birds such as band-tailed pigeon, mourning dove, ring-necked pheasant, wild turkey, and California quail, raptors such as ospreys, several species of hawks such as sharp-shinned hawk, Cooper's hawk, and red-tailed hawk, and American kestrel; and a variety of small mammals and rodents such as bats, rabbits, squirrels, pocket gophers, several species of mice and voles, coyotes, raccoons, porcupines, opossums, and skunks. In the dry Douglas-fir forests, species are similar to the drier white oak and ponderosa

pine associations with the addition of black-tailed deer, scattered Roosevelt elk, foxes, and an increasing number of mountain lion and bobcat. The quality and temperature of water in streams is very important to salmonids.

Westside Riparian Wetlands habitat type is typified by wetland hydrology and soils, periodic riverine flooding, or perennially flowing freshwater. Topography commonly is nearly level or gently sloping, but it can include strongly sloping to steep areas in the Coast Range Mountains. Gleyed soils and soils in areas where water is present (i.e., surface ponding, overbank flow, or high water table) long enough to develop redoximorphic concentrations and/or depletions are typical. The frequency of flooding is frequent or occasional.

This habitat type generally occurs as patches or linear areas within a matrix of forest or regenerating forest, typically areas of the Westside Lowlands Conifer-Deciduous Forest habitat type. Examples of the Westside Riparian Wetlands habitat type include Little Lobster and Briar Creeks south of Digger Mountain, Oliver and Peak Creeks south of Flat Mountain, and Coleman Creek south of Alsea Falls. The primary use of the forested portions is timber harvesting. The climate is characterized by warm to cool, wet winters and hot to warm, dry to moist summers. Livestock grazing occurs in some areas.

Typically, this habitat type occurs as tall, deciduous, broadleaf forest, woodland, or shrubland. Trees include conifers such as Douglas-fir, western hemlock, and western redcedar and hardwoods such as bigleaf maple and red alder (fig. 73). Understory plants include shrubs, forbs, and grasses. Water is sometimes present on the surface for some portion of the year. Large woody debris is abundant in the forests and adjacent stream channels. Small stream channels (first, second, and third order

Figure 73.—Westside Riparian Wetlands habitat type in an area of Nekoma-Fluvaquents complex, 0 to 3 percent slopes.

streams) and small backwater channels of larger streams or creeks are also included in this habitat type.

Flooding is the primary natural disturbance. The frequency and intensity of flooding are variable, depending on the hydrologic and geomorphic conditions. Floods can create areas for the successional processes of plant and animal lifeforms to begin anew, erode existing biotic communities along streambanks, deposit suspended sediment and nutrients on existing biotic communities, and selectively kill species not adapted to a particular duration or intensity of flooding. Since most plant communities are adapted to a particular flooding regime (i.e., frequent or occasional) or a given time period (i.e., early or late) in the successional order of plant communities after a major disturbance, the composition of this habitat is variable. Debris flows and torrents, though typically infrequent, are another important disturbance in mountainous areas of this habitat type. Because of the landscape position and available moisture of this habitat, fire was probably not a major factor, although fires within a watershed generally would impact the habitat through flooding, sedimentation, and additions of large woody debris. Beavers are important because their dams commonly change the hydrology of the stream system. Grazing by deer, elk (fig. 74), or livestock also can have a negative impact on this habitat.

Riparian habitat is extremely dynamic; the composition of the vegetation depends on the type of disturbance that has occurred. Intense logging without use of adequate or proper management practices in conifer or mixed riparian or wetland forests commonly allows for the establishment and long-term dominance of red alder. Salmonberry responds in a similar manner and becomes dominant in the understory.

Figure 74.—Elk grazing in an area of Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes.

Logging activities tend to reduce the amount of large woody material in streams and also remove the sources of that material. Timber harvesting can also alter hydrology, generally by increasing after-harvest peak streamflows. Roads and other water diversion or retention structures change watershed hydrology with wide ranging and highly diverse effects. The most significant of these structures are the major flood-controlling dams that have greatly altered the frequency and intensity of flooding on bottomland. Increases in nutrients and pollutants are additional anthropogenic impacts (Johnson and O'Neil, 2001).

This habitat provides important breeding areas and travel corridors for amphibians, reptiles, waterfowl, and raptors. Where possible, the riparian vegetation along streams and rivers should be protected from excessive disturbance to maintain or improve water quality. Plant cover stabilizes streambanks and riverbanks, reduces water temperatures, and minimizes the deposition of sediment into rivers and streams. Stream habitat, including water quality and temperature, is very important to salmonids.

The Westside Riparian Wetlands habitat type occupies relatively small areas, and the extent of this habitat has declined greatly as a result of urban and residential development and agricultural uses. The portion that remains is generally in poor condition due to various human impacts that have degraded the ecosystems. The long-term outlook for this habitat type is not good.

Portions of general soil map units 4 and 11 through 18 are representative of the Westside Riparian Wetlands habitat type. Soils generally associated with this habitat include the Kirkendall, Nekoma, Quosatana, Pyburn, Wasson, and Zyzzug soils and Aquents, Fluvaquents, and Fluvents. The higher taxonomic class soils represent the variability of this habitat with differing landscapes, plant communities, parent material, climatic zones, water bodies, and sources of water. The scale of soil mapping limited recognition of these riparian areas to small, highly variable, linear inclusions along watercourses and drainageways within the map units (fig. 75). These inclusions were too small to delineate on the soil maps at the scale used.

Typical wildlife species associated with this habitat include fish species such as brown trout and brook trout; amphibians such as several species of salamanders and frogs; reptiles such as alligator lizard and garter snakes; a variety of bird species including great blue heron, green heron, wood ducks, mergansers, several species of hawk, great horned owl, western screech owl, northern pygmy owl, red-breasted sapsucker, northern flicker, hairy woodpecker, American dipper, belted kingfisher, rufous hummingbird, several species of swallow and flycatcher, western bluebird, cedar waxwing, robins, a variety of songbirds such as finch, sparrow, thrush, and warbler, game birds such as wild turkey, California quail, and mountain quail; and a variety of small mammals and rodents such as opossums, shrews, moles, bats, eastern cottontail hare, snowshoe hare, Townsend's chipmunk, pocket gopher, woodrat, voles, gray fox, minks, weasels, and skunks.

Westside Lowlands Conifer-Deciduous Forest habitat type covers most of the forested lowlands of western Oregon (fig. 76). Examples of this habitat in the county are the area from Blodgett to Summit and north to the county line, Digger Mountain west of Alsea, Pioneer Butte west of Philomath, Buck Peak (between Flat Mountain and Green Peak), and Fleece Ridge. This is the most extensive habitat type in the county, and it forms the matrix within which other habitats occur, especially the Westside Riparian Wetlands habitat type and to a much lesser extent, the Herbaceous Wetlands and Open Water—Lakes, Rivers, and Streams habitat types. The Westside Lowlands Conifer-Deciduous Forest habitat type also occurs adjacent to or in a mosaic with the Agriculture, Pastures, and Mixed Environs habitat type. In the foothills of the Coast Range Mountains adjacent to the Willamette Valley, this habitat is in proximity to or in a mosaic with the Westside Oak/Dry Douglas-fir Forest and Woodlands habitat type. At the higher elevations in the county, it is bordered by

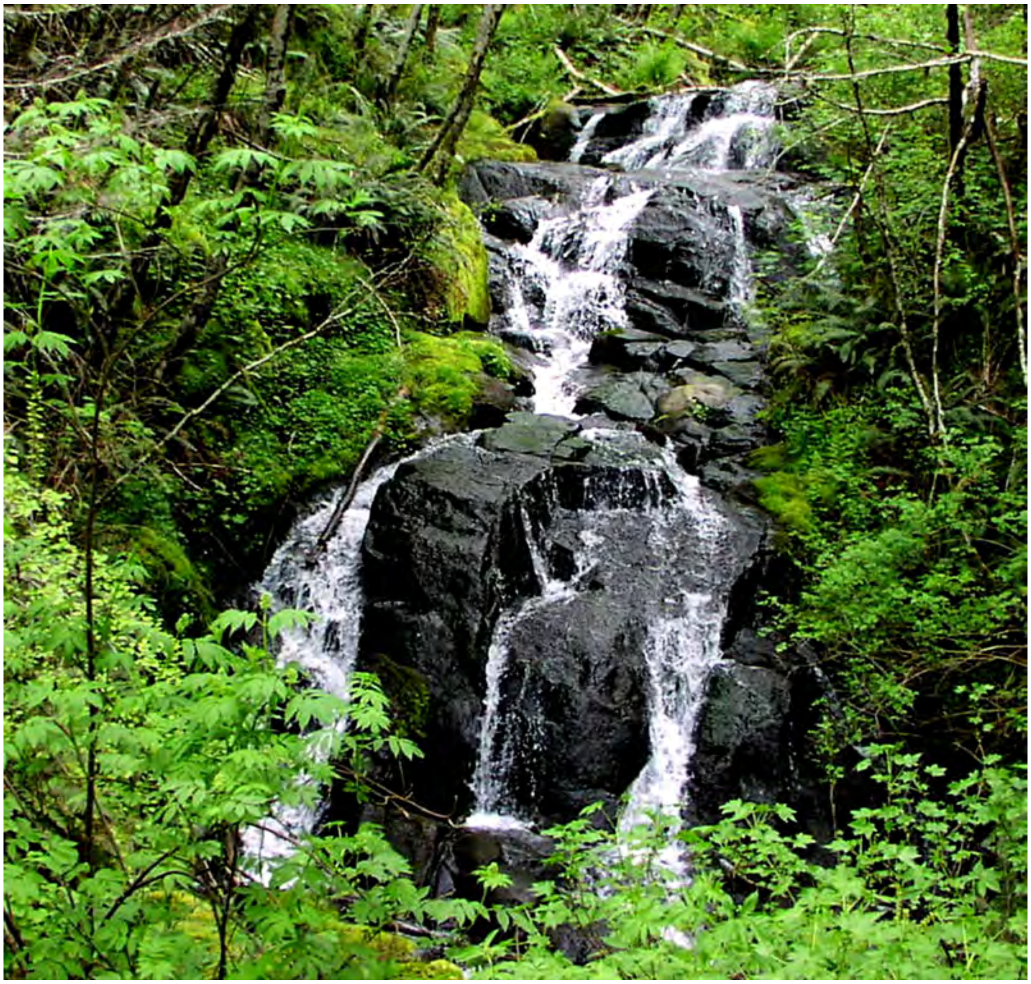


Figure 75.—Riparian area in an area of Caterl-Laderly-Romanose complex, 30 to 60 percent slopes.

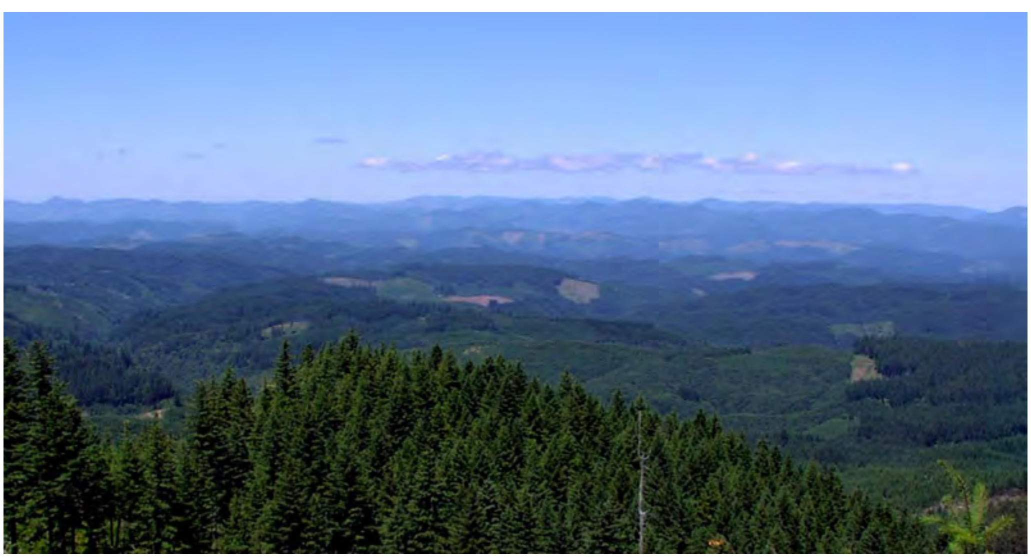


Figure 76.—Westside Lowlands Conifer-Deciduous Forest habitat type is dominant in the Coast Range Mountains in Oregon.

the Montane Mixed Conifer Forest habitat type. The climate is characterized by warm to cool, wet winters and hot to warm, moist summers. The primary land use is forestry.

This forest habitat is dominated by evergreen conifers such as Douglas-fir and western hemlock or deciduous broadleaf trees such as bigleaf maple and red alder, or both. Typical of the late seral stage is an abundance of large conifer trees, a multilayered canopy structure, large standing snags, and many good-sized logs on the ground. Dead trees contribute to the habitat even after they have fallen to the ground. The decaying material supports an abundant supply of insects, which is a source of food for many vertebrates, and it provides cover for amphibians, reptiles, and small mammals. Douglas-fir and western hemlock form a closed canopy under which a variety of other trees and shrubs grow with a rich and diverse assemblage of plants on the forest floor. The early seral stage generally has smaller trees and a single-storied canopy and forms a mosaic with various deciduous hardwood species such as bigleaf maple and red alder. This stage may be dominated by conifers or broadleaf trees, or both. The regenerating forest has not yet grown sufficiently to provide significant canopy closure; however, a variety of shrub species offer good ground cover. In areas where stumps and downed logs are abundant, this stage can provide habitat for many species adapted to open areas with good cover. Woody debris is abundant in early stages after a major disturbance, but it is much less abundant after harvest practices such as clearcutting. The composition of the forest understory is quite variable. Evergreen shrubs tend to be dominant in nutrient-poor or drier areas, while deciduous shrubs, ferns, and/or forbs tend to be dominant in relatively nutrient-rich or moist areas. Almost all structural stages are represented in the successional sequence of plant communities within this habitat. Mosses commonly are a major ground cover. Lichens are abundant in the canopy of ancient forest stands. Throughout this habitat, western hemlock tends to increase in importance as stand development continues.

Fire is the major natural disturbance on this habitat. Natural fire-return intervals generally range from about 100 years or less in the drier areas to several hundred years in the wettest areas. Major natural fires are associated with occasional extreme weather conditions. Fires usually are of high intensity, with few trees surviving. Low- and moderate-severity fires, which leave partially to completely live canopies are not uncommon, especially in the drier areas. Occasional windstorms occur, varying greatly in severity. Minor wind gusts occur quite frequently and cause little damage, while major windstorms that cause extensive damage occur once every few decades on average. Insects and diseases are significant causes of mortality. Landslides and other slope stability problems occur in some areas.

Clearcut logging practices and plantation forestry have resulted in much less diverse tree canopies and have focused mainly on Douglas-fir, resulting in reductions of coarse woody material as compared with natural levels, a shortened stand initiation period, and plant community succession that stops well before reaching maturity.

Extremely large areas of this habitat remain, and these encompass some of the most diverse and productive wildlife habitat in the county. Some loss has occurred. The aerial extent continues to be reduced gradually, and the condition of the remaining habitat has been impacted by improper harvesting practices or poor management at both the individual forest stand level and at the landscape level. Most of this habitat is currently in Douglas-fir plantations, with only a small fraction of the original old-growth forest remaining in the National forests. An increase in alternative silvicultural practices may be improving the structural and species diversity in some areas.

General soil map units 13 through 16 are representative of the Westside Lowlands Conifer-Deciduous Forest habitat type. Typical soils include the Apt, Blachly,

Bohannon, Digger, Formader, Harslow, Hemcross, Honeygrove, Kilchis, Kilowan, Klistan, McDuff, Peavine, Preacher, Remote, Shivigny, Slickrock, and Umpcoos series.

Typical wildlife species associated with this habitat include amphibians such as western toad and several species of salamanders; reptiles such as northern alligator lizard, rubber boa, and several species of garter snakes; a variety of bird species including great blue heron and green heron, wood ducks, ospreys, several species of hawks, great horned owl, western screech owl, spotted owls, northern saw-whet owl, northern pygmy owl, red-breasted sapsucker, pileated woodpeckers, hairy woodpeckers, gray and Stellar's jays, rufous hummingbird, several species of swallows and flycatchers, western bluebird, red-breasted nuthatch, marbled murrelet, cedar waxwing, robins, a variety of songbirds such as finches, sparrows, thrushes, and warblers, game birds such as ruffed grouse (fig. 77), blue grouse, and mountain quail; and a variety of mammals and rodents such as shrews, moles, bats, porcupines, snowshoe hare, mountain beaver, Townsend's chipmunk, several species of squirrels such as western gray squirrel, Douglas' squirrel, and northern flying squirrel, deer mice, bushy-tailed woodrat, several species of voles, martens, weasels, skunks, red fox, gray fox, black bear, black-tailed deer, Roosevelt elk, mountain lions, and bobcats.

Montane Mixed Conifer Forest habitat type occurs at the higher elevations of the Coast Range Mountains in Benton County. It is typified by a moderate snowpack that persists for as long as 3 months in most years (4 months in years with above average snowfall). The climate is characterized by cold, wet winters and cool, moist summers.

The primary land use for this habitat is forestry and recreation. Most areas of this

Figure 77.—Ruffed grouse in an area of Westside Lowlands Conifer-Deciduous Forest habitat type.

habitat occur on public land and are managed for timber. Much of its extent has been harvested with a dispersed-patch pattern technique. Marys Peak, Grass Mountain, Prairie Peak, Flat Mountain, Old Blue Mountain, and Green Peak are examples of this habitat.

This forest habitat is above the Westside Lowlands Conifer-Deciduous Forest habitat. It is dominated by conifers and has a single- to multi-storied canopy structure, tree sizes that vary from large to small, abundant large snags and logs to none in some areas, and understories that vary in structure with some combination of shrubs, ferns, forbs, and grasses commonly dominant. In some areas the understory can be entirely void of plants. Deciduous broadleaf shrubs are the most typical understory species. Early successional structure after logging or fire varies depending on understory species. Mosses are a major ground cover, and lichens generally are abundant in the tree canopy.

This forest habitat in the Coast Range Mountains is recognized by the prominence or presence of either noble fir or Pacific silver fir (fig. 78). Several other tree species may be codominant, such as Douglas-fir and western hemlock. Tree regeneration is usually by Pacific silver fir or noble fir. Deciduous shrubs, which are found in abundance in the understory, include oval-leaf blueberry, thin-leaf huckleberry, grouse whortleberry, fools huckleberry, and copperbush. Important evergreen shrubs include Pacific rhododendron and common beargrass. The most abundant forbs include Oregon oxalis, queen’s cup beadlily, prince’s pine, and dwarf bramble.

Fire is the major natural disturbance on this habitat. Fires commonly are of high intensity, with mean fire-return intervals varying greatly. Windstorms are common, and

Figure 78.—Montane Mixed Conifer Forest habitat type represented by an old growth stand of noble fir on Grass Mountain in an area of Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes.

occasionally they result in stand replacement events. Insects and diseases are other important small-scale disturbance factors. Landslides and other slope stability problems occur in some areas.

After fire or other disturbance, stand initiation can take a long time, particularly at the higher elevations, and usually results in an understory dominated by shrubs and forbs with or without a scattered tree layer for extended periods. Early seral tree species can be either of the potential dominant species for the habitat, depending on the environment, type of disturbance, and seed source. Fires tend to favor early seral dominance of Douglas-fir or noble fir if a viable seed source is present. As stand development continues, the relatively shade-intolerant trees typically decrease in importance and the shade-tolerant species such as Pacific silver fir gradually increase. Three to four centuries or much longer is needed to develop complex, multilayered canopies with large trees. On some sites, they may never develop. Tree growth rates are slowed by climatic conditions, and the potential to develop complex canopies tends to decrease as elevation increases.

Forest management practices, such as clearcutting, and monoculture tree plantations have in many instances resulted in less diverse tree canopies, with the major emphasis on Douglas-fir. These practices also tend to reduce the amount of large woody debris as compared to natural levels, and halt succession well before late seral stage characteristics can be expressed. Regeneration of trees in this habitat has been a continual problem for forest managers for many decades. Previous management practices included replanting Douglas-fir or burning slash debris. Both had various negative impacts on productivity and regeneration. Current management practices have shifted away from burning and other manipulative practices in areas of this habitat and toward planting of noble fir or other native species and natural regeneration of tree stands. Noble fir plantations are now quite common in managed areas, even in those outside the natural range of this species.

This habitat occupies a minor extent of the landscape in Benton County. Some areas, such as the summit of Marys Peak, not including the open grassland, are relatively undisturbed by humans and include significant old-growth stands. Other areas have been extensively affected by logging, especially dispersed-patch clearcuts. The extent of this habitat is stable, but the condition is probably still declining as a result of the continued harvest management practices.

General soil map units 17 and 18 are representative of the Montane Mixed Conifer Forest habitat type. Typical soils in this habitat include the Blodgett, Burntwoods, Caterl, Chintimini, Fiverivers, Giveout, Grassmountain, Laderly, Luckiamute, Lurnick, Maryspeak, Murtip, Newanna, Oldblue, Romanose, Sevencedars Valsetz, Woodspoint, and Yellowstone series.

This habitat includes similar typical wildlife species as the lower Westside Lowlands Conifer-Deciduous Forest habitat type including amphibians such as western toad and several species of salamanders; reptiles such as northern alligator lizard, rubber boa, and several species of garter snakes; a variety of bird species including several species of hawks, great horned owl, spotted owls, northern saw-whet owl, northern pygmy owl, red-breasted sapsucker, pileated woodpeckers, hairy woodpeckers, gray jay, Stellar's jay, rufous hummingbird, several species of swallows and flycatchers, red-breasted nuthatch, marbled murrelet, robins, a variety of songbirds such as finches, sparrows, thrushes, and warblers, and game birds such as ruffed grouse, blue grouse, and mountain quail; and a variety of mammals and rodents such as shrews, moles, bats, porcupines, snowshoe hare, mountain beaver, Townsend's chipmunk, several species of squirrels including western gray squirrel, Douglas' squirrel, and northern flying squirrel, deer mice, bushy-tailed woodrat, several species of voles, martens, weasels, skunks, red fox, gray fox, black bear, black-tailed deer, Roosevelt elk, mountain lions, and bobcats.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, saturated hydraulic conductivity (Ksat), corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Slope Stability

The Coast Range Mountains are generally characterized by very steep slopes, relief of as much as 2,000 feet, and moderate dissection by rivers and streams. These mountains are fairly young; the area has undergone recent tectonic activity. Mean annual precipitation ranges to more than 100 inches per year. Very steep slopes, when combined with incompetent geologic units and intense precipitation, result in

numerous and varied slope failures. The mass movement of soil, rock, and debris downslope is termed a landslide (NRC, 1996). This is a normal geologic process. Generally, the occurrence of landslides is determined by local topographic, hydrologic, and geologic conditions. Slope instability is an inherent natural feature of mountainous terrain, particularly where the environmental factors, including soils, geology, vegetation, hydrology, and climate, combine to create a potential for slope failure. The types of mass movement events are largely differentiated by material properties, shear plane geometry, and triggering mechanisms.

The principal mass movement processes are grouped into two general categories. The first group includes slow, downslope movement, or soil creep (fig. 79), involving subtle deformation of the soil mantle in response to gravitational stress, and discrete, slow-moving, deep-seated failures, or slump-earthflows (fig. 80). The second group includes rapid, shallow soil and organic debris movement from mountain slopes, or debris avalanche-debris flows (fig. 81) and rapid debris movement along downstream channels, or debris torrents. Areas of clay-rich bedrock and deep, cohesive soils are characterized by slow mass movement processes such as soil creep and slump-earthflow. Debris avalanche-debris flow is dominant in mountainous areas that have very steep slopes, areas of soils that are not cohesive, and areas of relatively competent bedrock, such as the Coast Range Mountains. Debris torrents involve the movement of water-charged soil, rock, and organic material down steep, first- and second-order stream channels on mountain slopes (Swanston and Swanson, 1976).

In localized areas where shear stresses are high enough, discrete failures occur and slump-earthflow features are formed. Simple slumping takes place as rotational movement of a block of soil over a broadly concave slip surface and involves very little breakup of the moving material. Slumps exhibit no additional movement once initial failure occurs. Where the moving material slips downslope and is broken up and transported either by a flowage mechanism or by gliding displacement of a series of blocks, the movement is referred to as slow earthflow (fig. 82). The dominant failure geometry is a block of soil sliding along a curved surface. The combined term slump-earthflow is used because many of the deep-seated mass movements in the Pacific Northwest have slump characteristics in the headwall area and earthflow features downslope (Varnes, 1958).

Road building and forest harvesting activities may accelerate the rate of mass movement; however, with careful attention to the factors affecting slope stability, a negative impact from these activities can be avoided.

The initial movement of debris avalanche-debris flows occurs as a block of soil fails and slides along a planar or flat surface oriented downslope. Once failure occurs, the internal stresses in the block cause it to break up and move downslope either as a loosely coherent mixture of soil, rock, and organic debris or if enough water is present, as a flow of this mixture. The dominant failure geometry is a block of soil sliding along an inclined surface.

Although both categories of movement have similar factors that can be used to evaluate the risk of failure, the relative importance of these factors may be different. Each type of mass movement has some site or management activity parameters that are specific for that movement. To evaluate the risk of mass movement, each type must be evaluated separately using the factors that have been found to be significant in characterizing that particular kind of failure (Swanston, 1981).

Debris torrents are distinguished from debris avalanche-debris flows by the landscape. Debris torrents are initiated during extreme discharge events by slides from adjacent mountain slopes, which enter a channel and move directly

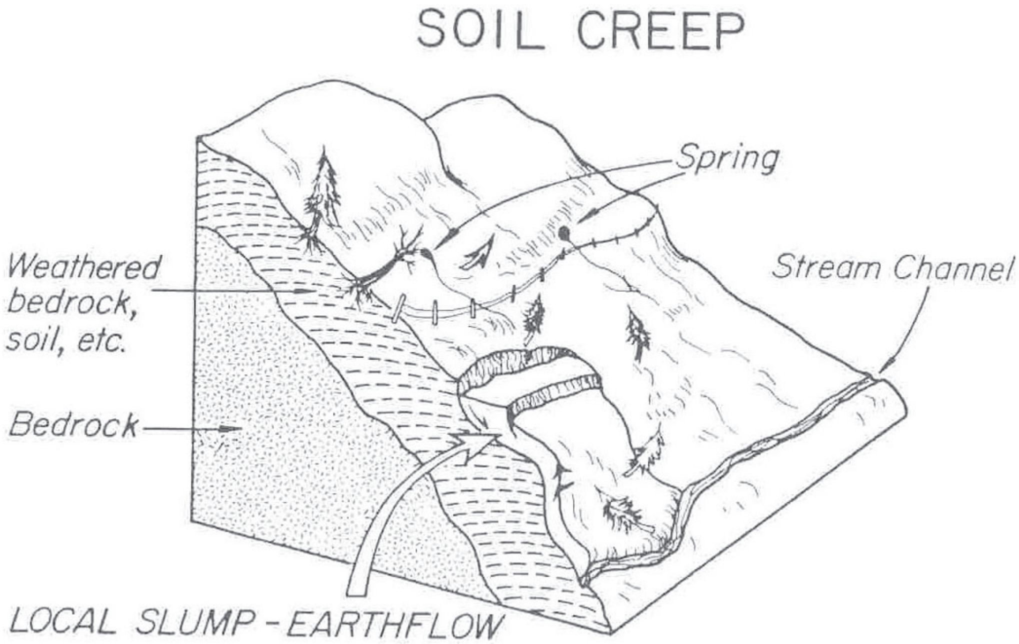


Figure 79.—Block diagram of a type of mass movement called soil creep.

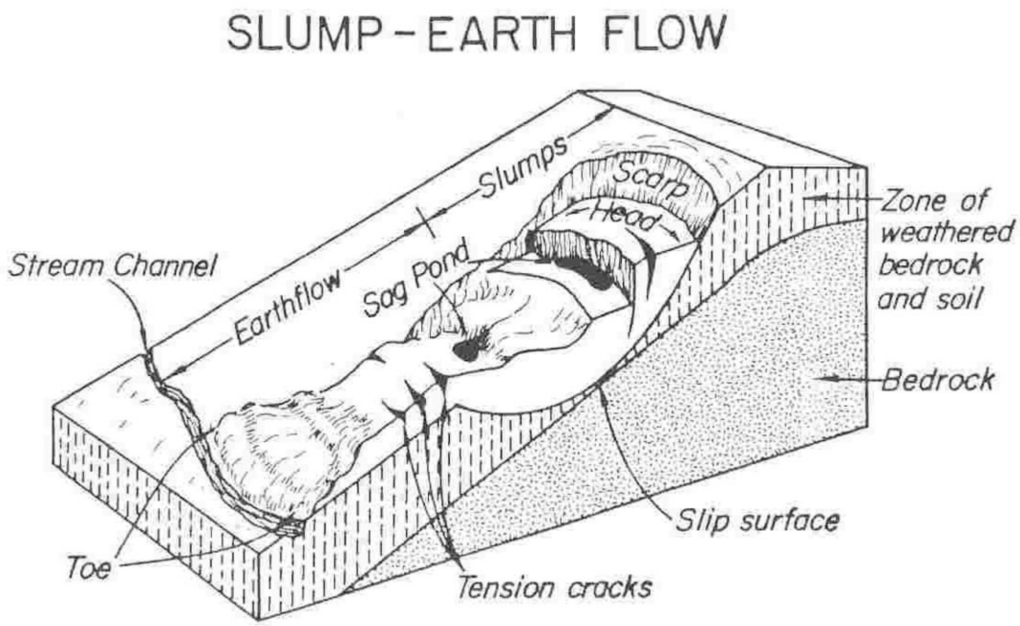


Figure 80.—Block diagram of a type of mass movement called slump-earthflow.

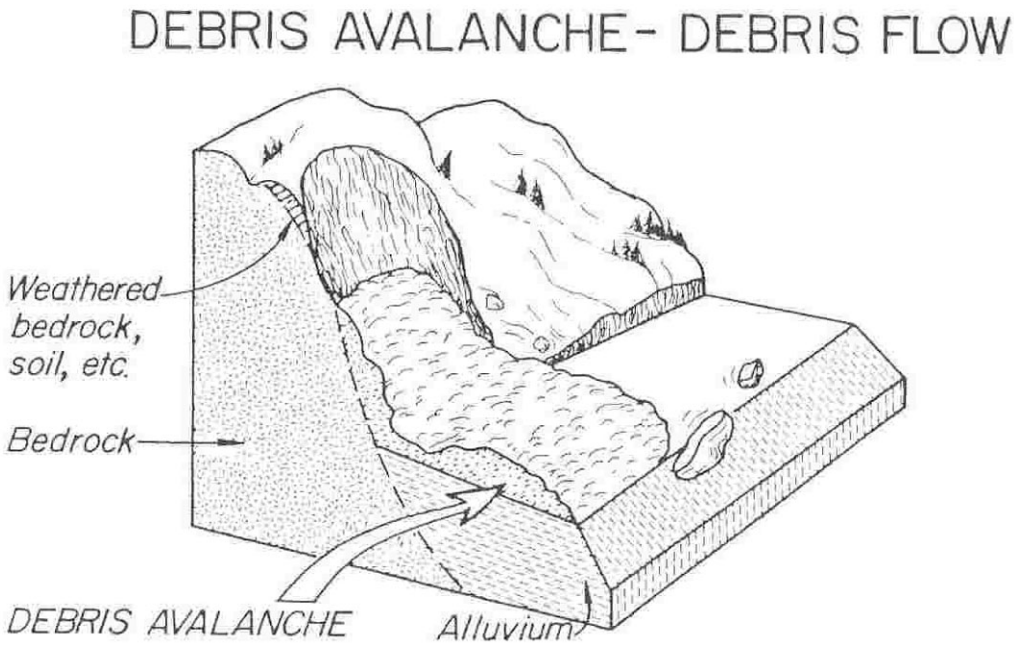


Figure 81.—Block diagram of a type of mass movement called debris avalanche-debris flow.

Figure 82.—Slump-earthflow in an area of Wellsdale-Willakenzie-Dupee complex, 12 to 20 percent slopes.

downstream, or by the breakup and mobilization of debris in the channel. The initial slurry of water and associated debris commonly incorporates large quantities of additional organic and inorganic material from the streambed and streambanks. As the torrent loses momentum, a tangled mass of large organic debris within a matrix of sediment and fine organic material is deposited.

The main factors controlling the occurrence of debris torrents are the quantity and stability of debris in channels, steepness of the channel, stability of adjacent mountain slopes, and peak discharge characteristics of the channel. The concentration and stability of debris in channels reflect the history of stream flushing and the health and stage of development of the surrounding timber stands (Froelich, 1973). The history of storm flows has a controlling influence over the stability of the soils on mountain slopes and the debris in stream channels (Swanston and Swanson, 1976).

Six major environmental qualities should be taken into consideration when judging stability of natural slopes in terms of soil mass movement—landform features, soil characteristics, bedrock lithology and structure, vegetative cover, hydrologic characteristics, and climatic conditions. Each of these qualities encompasses a group of factors that control stability of a slope and determine or identify the type of processes and mass movement that are most likely to occur. Key factors that help to identify potentially unstable slopes on any mountainous terrain include the slope gradient or angle and the intensity and duration of precipitation. Soil properties, including soil depth, texture, permeability, angle of internal friction, and cohesion determine the types of processes that will be dominant. To some degree, these properties also help to determine the stable slope gradient of a particular soil type. Bedrock structure, especially orientation and inclination of beds and degree of fracturing or jointing, is an important contributing factor to the local stability conditions (Swanston, 1981). The major environmental qualities that affect mass movement are discussed in the following paragraphs.

Landform Features

These features are a reflection of the origin and geomorphic history of a particular watershed, and they provide information on soil types and their characteristics, failure mechanics, drainage, and climate. The principle factors are terrain origin, slope configuration, and slope gradient.

Terrain origin.—Analysis of this factor provides a qualitative indication of potentially unstable landform types. Initially, this information can be obtained from aerial photographs or topographic maps.

Slope configuration.—Investigation of slope shape provides an indication of the location and extent of the most highly unstable areas on a slope. On both concave and convex slopes, usually the steepest portions have the highest risk of instability. Convex slopes may have over-steepened gradients on the lower parts of the slope, while concave areas have over-steepened gradients on the upper parts of the slope.

Slope gradient.—This is a key factor controlling soil stability on mountain slopes. It determines the effectiveness of gravity acting to move a soil mass downslope. Slope gradient also has a major effect on subsurface waterflow in terms of drainage rate and subsequent susceptibility to temporary water table buildup during high-intensity storms.

The general relationship between slope angle and stability in the county is as follows:

SLOPE ANGLE (percent)	STABILITY
0 to 40	Stable when dry or saturated, except in areas of very poorly drained soils where earthflows can develop.
40 to 55	Stable when dry. Marginally stable when saturated.
55 to 75	Stable to marginally stable when dry. Unstable when saturated.
Over 75	Subject to ravel when dry. Very unstable when saturated.

The above slope limits vary somewhat depending upon rock type and structure, soil characteristics and aspect, and the influence of groundwater at a given site.

Soil Characteristics

This element is a reflection of parent material, climate, and geomorphic history. It provides useful information about drainage, strength, failure mechanisms, and degree of weathering. Different soil types have varying stability characteristics. In general, on steep, dry slopes, coarse-textured and less cohesive soils (sand and gravel) are more likely to ravel or form dry flows. On wet slopes, finer textured soils (higher content of clay) or poorly drained soils (silt and clay) are more cohesive and tend to slide at lower slope angles than do coarse textured, well drained soils. Key factors include the type of parent material, presence or absence of a compacted or restrictive layer, evidence of concentrated subsurface drainage, soil properties, and types of soil mass movement.

Type of parent material.—Recognition of parent material type provides an indication of the probable shape of soil particles, bulk density, degree of cohesion, clay mineral content, soil depth, permeability, and presence or absence of impermeable layers. These characteristics, in turn, suggest the types of soil mass movement processes that may occur in an area. This kind of information is easily obtained from existing geologic and soil survey maps and through field observation.

Presence or absence of compacted or restrictive layer.—Analysis of this factor provides an indication of the depth of potentially unstable soil and probable principal failure planes on the slope. This information is available from soil pits or borings and inspection of slope failure scars in the field.

Evidence of concentrated subsurface drainage (including seasonal saturation from a high water table).—This factor indicates local zones of periodic high soil-moisture content including saturation and potentially active pore-water pressures during periods of high rainfall. These indicators help to identify potential areas of slope failure. This information is obtained through aerial photo interpretation and ground observation. Diagnostic features include broad linear depressions perpendicular to the contour of the slope (representing old landslide sites) along with areas of concentrated subsurface drainage and wet areas on the slope (representing springs or seeps and areas of concentrated groundwater movement).

Soil properties.—These factors are key in determining soil strength, dominant types of soil mass movement, mechanics of mass movements, and probable maximum and minimum stable slope gradients for a specific soil. They are identifiable through field testing, sampling, and laboratory analysis. Data may also be obtained

from soil surveys and engineering studies for road construction. They include soil depth, soil texture, clay mineralogy, angle of internal friction, and cohesion.

Soil depth is the principal component used in determining the weight of the soil mass and an important element in determining soil strength and gravitational stress acting on an unstable soil.

Texture and clay mineral content are significant factors in controlling cohesion, angle of internal friction, and hydraulic conductivity of an unstable soil.

Clay mineralogy is useful as a gauge of sensitivity to deformation. Some clays are more susceptible to deformation than are others, making this element a key consideration in areas where active soil creep and slump-earthflow failures occur. Clays of the smectite group that have a high potential for shrinking and swelling are particularly unstable.

Angle of internal friction is a significant factor used in determining soil shear strength or resistance to gravitational stress.

Cohesion is the capacity of soil particles to stick together. It commonly is a direct result of a high content of clay particles (more than 20 percent). It is a major contributor to the shear strength of a fine grained soil.

Determining the types of soil mass movement provides information on the size and location of potential stability problems, type of recent landslide activity, and kinds of soil mass movement processes operating on a slope.

Bedrock Lithology and Structure

Lithology and structure of bedrock reflect the soil depth, drainage, geomorphic formation, type and degree of weathering, and dominant soil mass movement processes in a given area. Different types of rock have different characteristics. Soil characteristics are partially defined by local bedrock. Bedrock features such as bedding planes, fractures and faults, or fold structures can affect slope stability by weakening the rock, increasing the depth of weathering, and influencing the movement of groundwater. Key elements include the type of bedrock, degree of weathering, orientation of bedding planes, and degree of jointing and faulting.

Rock type.—This element provides a regional guide to probable areas of soil mass movement problems and the dominant processes involved. For example, in the Coast Range Mountains, areas underlain by breccia and silty sandstone are particularly susceptible to slump-earthflows. In areas where hard, resistant volcanic rock is present, shallow planar failures are dominant. The slope stability characteristics of a given rock formation largely depend on mineralogy, climate, and degree of weathering. These characteristics need to be determined for each individual area.

Degree of weathering.—This element gives an indication of soil depth and types of soil mass movement. For some rock types, it also is indicative of the degree of clay mineral formation.

Orientation of the bedding planes.—This element is a major contributor to unstable slopes, especially where orientation of the bedding planes parallels or dips in the same direction as the slope. In these areas, the bedding planes form zones of weakness along which slope failures can occur as a result of high pore-water pressure and a decrease in frictional resistance.

Degree of jointing and faulting.—Joints are major contributors to slope instability in areas where slopes are underlain by igneous material. When they occur parallel to or dip in the same direction as the slope, local zones of weakness are created along which failures can occur. Jointing also provides pathways for deep penetration of groundwater which, in turn, increases pore-water pressure along downslope-dipping joint planes.

Vegetative Cover

Vegetation influences the amount of water reaching the soil, the amount held as stored water at a site, and the relative strength or failure resistance of soil material. Key factors are vegetation type and distribution and root distribution and degree of anchoring in the subsoil.

Vegetation type and distribution.—This element provides useful information on the interception effectiveness of vegetation, water storage potential, and history of soil mass movement on a site.

Root distribution and degree of anchoring in the subsoil.—This element provides an indication of the effectiveness of tree roots as a stabilizing factor in shallow soils that have steep slopes.

Hydrologic Characteristics

Hydrologic properties reflect the ease with which water moves through the soil and the potential for saturation and development of pore-water pressures. For all types of rock and soil and on a wide range of slope angles, the potential for slope failure is significantly increased if the material is saturated. Principal elements include hydraulic conductivity and pore-water pressures.

Hydraulic conductivity.—This element provides a measure of water movement in and through soil material. Low hydraulic conductivity means rapid, storm-generated saturation and a high probability of active pore-water pressure, producing highly unstable conditions in soils on steep slopes.

Pore-water pressure.—This is a key element in failure of soils on steep slopes. It primarily reduces the weight component of soil shear strength.

Climatic Conditions

Climate controls the quantity and timing of water input into the soil. Major considerations are the occurrence and distribution of precipitation and accumulation of snow and effects of seasonal melting and rain-on-snow events.

Precipitation occurrence and distribution.—This is the key element in predicting regional soil mass movement because most are triggered by active pore-water pressure produced by rainfall of high intensity.

Amount of snow accumulation and the effect of seasonal melting and rain-on-snow events.—This element profoundly affects the amount of water reaching the soil in winter, the amount of water stored in the snowpack, and the amount of water released to the soil during warm periods early or late in spring. It creates a potential for excess water that the soil is unable to immediately conduct away from the site. This causes the development of a local temporary water table which produces active pore-water pressure, thus increasing the likelihood of soil mass movement.

In the central portion of the Coast Range Mountains, debris avalanche-debris flow and debris torrent types of soil mass movement are dominant on unstable landscapes that formed in gently dipping sandstone and siltstone of the Tyee Formation (Swanston, 1979). A debris avalanche-debris flow generally is surficial soil movement that occurs on very steep slopes. It occurs as shallow sliding and/or raveling of soil and rock material at the bedrock-soil contact. Low content of clay and high content of rock fragments increase the susceptibility of soils to this type of mass movement. The topography is characterized by structurally-controlled, east-west trending, narrow ridges and deeply incised valleys with very steep mountain slopes cutting across gently dipping bedding planes. On the steep, structurally-controlled slopes, soils typically are less than 4 feet thick and have a high content of rock fragments. These soils formed in fairly homogeneous colluvium derived from sandstone and siltstone. The transition from soil to underlying bedrock is abrupt, and the bedrock commonly is only slightly weathered. The surface of the bedrock typically

functions as the slippage plane for this type of mass movement. In the thicker soils that are underlain by siltstone, especially in areas where extensive shearing has occurred, soil creep and slump-earthflows are dominant on unstable terrain as a result of widespread alteration of siltstone to smectite clay (Schlicker and others, 1974).

Intact basalt flows typically are quite competent; however, the presence of weak sedimentary interbeds can compromise the unit, making it susceptible to landslides. In addition, basalt flows commonly are considerably permeable to groundwater, while sedimentary units are not. Water often perches on the sediment-basalt contact, leading to saturated conditions and subsequent weakening of the rock unit (Wang and others, 2001).

Dikes and sills of basalt and gabbro, both of which are relatively strong, commonly are implaced into mudstone and sandstone units of the Eocene Tyee Formation. Slides commonly occur along the boundaries between these two types of rock. The higher peaks, such as Marys Peak, Grass Mountain, and Flat Mountain, are cored by Oligocene intrusive units. These peaks typically are flanked by large, deep-seated landslide deposits, which most likely reflects a tendency for sliding along the boundaries of these intrusive rocks (Bela, 1979).

Soil creep and slump-earthflows are most common on clayey soils that formed in mudstone and siltstone of the Tyee and Flournoy Formations and on soils that formed in tuff and breccia of the Siletz River Volcanics Formation. These soils have a high content of silt and clay and can form a hummocky slump complex on steep or very steep slopes, especially in areas that are saturated by springs or seeps and runoff. In areas where mudstone and siltstone units and sandstone units are interbedded, the ridgetops, shoulder slopes, knobs, and other convex areas generally are on the harder sandstone units and the back slopes, footslopes, toeslopes, and other concave areas generally are on the more weathered mudstone and siltstone units.

Rock slides can occur near outcroppings of basalt or coarse-grained intrusive rock and well cemented units of the Tyee Formation.

Road building, forest harvesting activities, and land leveling for construction of buildings can modify the existing mantle material and slope conditions, strongly influencing the relative stability of a site and possibly accelerating the rate of mass movement. With careful attention to the factors affecting slope stability, the negative impact from these activities can be avoided. For more information on slope stability and forest management practices, see the “Forestland Productivity and Management” section.

The stability of existing landslides is extremely variable, ranging from ongoing, active movement to stable. Onsite investigation is needed to determine the nature of existing mass movement. Mapped landslides have failure planes that are assumed to have reduced shear strength; therefore, existing landslides are considered to have a high risk of mass movement in all geologic assessment studies (Wang and others, 2001).

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance (fig. 83). Tables 15 and 16 show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be

Figure 83.—Building site development in an area of Bellpine-Jory complex, 2 to 12 percent slopes.

expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil

properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 17 and 18 show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The

ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches or between a depth of 24 inches and a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (Ksat) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Groundwater contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include saturated hydraulic conductivity (Ksat), depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of groundwater pollution. Slope affects construction of the trenches and the

movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If the downward movement of water through the soil profile is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 19 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent

from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include saturated hydraulic conductivity (Ksat), depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erosion factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones,

cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include saturated hydraulic conductivity (Ksat), depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erosion factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, saturated hydraulic conductivity (Ksat), slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Construction Materials

Table 20 gives information about the soils as potential sources of gravel, sand, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

Gravel and *sand* are natural aggregates suitable for commercial use with a

minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as a potential source of topsoil. The features that limit the soils as a source of this material are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as a source of topsoil. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 21 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment (fig. 84). Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Figure 84.—Pond reservoir area on a farm in an area of Jory-Dupee complex, 2 to 12 percent slopes.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a groundwater aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 22 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 23 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 23, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in

the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 23, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 23 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water (fig. 85). Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas (fig. 86). The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter,

Figure 85.—Sheet, rill, and gully erosion in an area of Dupee silt loam, 12 to 20 percent slopes.

and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 24 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the

Figure 86.—Wind erosion in an area of Jory silty clay loam, 2 to 12 percent slopes.

fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 25 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are

assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 25 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 25 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides (fig. 87). Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months

Figure 87.—Damage from flooding in an area of Newberg, Cloquato, and Chapman soils.

in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 26 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 27 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeralf (*Xer*, meaning dry, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haploxeralfs (*Haplo*, meaning minimal horizonation, plus *xeralf*, the suborder of the Alfisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. An example is Aquultic Haploxeralfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Aquultic Haploxeralfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the taxonomic

unit in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Division Staff, 2003). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Abiqua Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Flood plains and alluvial fans
Parent material: Clayey alluvium derived from basalt or sedimentary and igneous rock
Slope: 0 to 5 percent
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Cumulic Ultic Haploxerolls

Typical Pedon

Ap—0 to 6 inches; very dark brown (10YR 2/2) silty clay loam, dark brown (7.5YR 3/2) dry; moderate very fine granular structure; hard, friable, slightly sticky and slightly plastic; many roots; many irregular pores; moderately acid (pH 5.8); abrupt smooth boundary.

AB—6 to 21 inches; very dark brown (10YR 2/2) silty clay loam, dark brown (7.5YR 3/2) dry; moderate fine and very fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many roots; many very fine tubular pores; faint slightly darker colored coatings on surface of peds; moderately acid (pH 5.6); clear smooth boundary.

Bw1—21 to 36 inches; dark reddish brown (5YR 2/2) silty clay, dark reddish brown (5YR 3/4) dry; weak medium prismatic structure parting to moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; common roots; many fine and very fine tubular pores; many faint continuous slightly darker colored coatings on surface of peds; strongly acid (pH 5.4); diffuse smooth boundary.

Bw2—36 to 54 inches; dark reddish brown (5YR 3/2) silty clay, reddish brown (5YR 4/4) dry; weak medium prismatic structure and moderate medium subangular blocky; very hard, firm, very sticky and very plastic; few roots; many fine and very fine tubular pores; many faint continuous coatings that are dark reddish brown (5YR 3/4) when dry and are on surface of peds; 5 percent fine and very fine fragments of weathered rock; strongly acid (pH 5.3); diffuse smooth boundary.

BC—54 to 72 inches; dark brown (7.5YR 3/2) silty clay loam, reddish brown (5YR 4/3) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; very few roots; many fine and very fine tubular pores; 20 percent fine (1 to 2 millimeters) fragments of weathered rock; strongly acid (pH 5.3).

Typical Pedon Location

Map unit in which located: Abiqua silty clay loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 2,800 feet north and 2,500 feet west of the southeast corner of sec. 2, T. 9 S., R. 1 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—0 to 15 percent

Profile:
Thickness of mollic epipedon—20 inches or more
Depth to bedrock—more than 60 inches
Reaction—strongly acid or moderately acid

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Content of rock fragments—0 to 15 percent gravel and 0 to 5 percent cobbles

Bw horizon:
Hue—10YR, 7.5YR, or 5YR
Value—2 to 4 moist, 3 to 5 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Content of rock fragments—0 to 15 percent gravel and 0 to 5 percent cobbles

BC horizon:
Hue—10YR, 7.5YR, or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—silty clay loam, silty clay, clay, or gravelly clay loam
Content of clay—35 to 50 percent
Content of rock fragments—5 to 50 percent gravel and 0 to 10 percent cobbles

Alsea Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
General landscape: Stream terraces and high flood plains
Parent material: Loamy alluvium derived from igneous and sedimentary rock
Slope: 0 to 5 percent
Elevation: 200 to 400 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 180 to 210 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Cumulic Ultic Haploxerolls

Typical Pedon

Ap1—0 to 8 inches; very dark brown (10YR 2/2) loam, very dark grayish brown (10YR 3/2) dry; moderate very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; moderately acid (pH 5.8); abrupt smooth boundary.

Ap2—8 to 12 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and

slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; moderately acid (pH 5.8); clear smooth boundary.

AB—12 to 16 inches; very dark grayish brown (10YR 3/2) clay loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine tubular pores; moderately acid (pH 5.8); gradual smooth boundary.

Bw1—16 to 25 inches; dark brown (10YR 3/3) clay loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; moderately acid (pH 5.6); gradual smooth boundary.

Bw2—25 to 34 inches; dark yellowish brown (10YR 4/4) clay loam, yellowish brown (10YR 5/4) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; moderately acid (pH 5.6); gradual smooth boundary.

BC—34 to 52 inches; yellowish brown (10YR 5/4) loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; few medium distinct brown (7.5YR 5/2) and pinkish gray (7.5YR 6/2) iron depletions and common medium distinct strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation; 5 percent gravel; moderately acid (pH 5.6); gradual smooth boundary.

C—52 to 67 inches; brownish yellow (10YR 6/6) sandy loam, yellow (10YR 7/6) dry; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine and medium interstitial pores; common medium prominent strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation and common medium distinct gray (7.5YR 5/1 and 6/1) iron depletions; 10 percent gravel; strongly acid (pH 5.4).

Typical Pedon Location

Map unit in which located: Alsea loam, 0 to 5 percent slopes

Location in survey area: In an area of hayland about 2,540 feet south and 1,730 feet east of the northwest corner of sec. 18, T. 14 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 30 percent
Content of rock fragments—0 to 5 percent gravel

Profile:
Thickness of mollic epipedon—20 to 30 inches
Depth to bedrock—more than 60 inches
Reaction—moderately acid or strongly acid
Hue—10YR or 7.5YR
Characteristics of redoximorphic features—depletions with chroma of 2 or less at a depth of 30 to 40 inches and concentrations in some areas

Ap horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist or dry
Texture—loam
Content of clay—18 to 27 percent

AB horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist or dry
Texture—loam or clay loam
Content of clay—20 to 30 percent

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry (3 moist at a depth of less than 30 inches)
Texture—loam or clay loam
Content of clay—20 to 30 percent

BC horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—sandy loam, loam, or clay loam
Content of clay—15 to 35 percent
Content of rock fragments—0 to 5 percent gravel

C horizon:
Value—4 to 6 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—sandy loam or loam
Content of clay—10 to 25 percent
Content of rock fragments—0 to 10 percent gravel

Amity Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
General landscape: Terraces
Parent material: Silty glaciolacustrine deposits
Slope: 0 to 3 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Argiaquic Xeric Argialbolls

Typical Pedon

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; many irregular pores; moderately acid (pH 5.8); clear smooth boundary.

A—7 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many roots; common irregular pores and few very fine tubular pores; moderately acid (pH 5.8); clear smooth boundary.

E—16 to 22 inches; dark gray (10YR 4/1) silt loam, light gray (5Y 7/1) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common roots; many irregular pores; common medium brown and black concretions; common fine faint brown and black masses of iron accumulation; moderately acid (pH 5.8); clear wavy boundary.

2Bt1—22 to 28 inches; grayish brown (10YR 5/2) silty clay loam, pale brown (10YR 6/3) dry; weak medium prismatic structure parting to moderate very coarse subangular blocky; hard, friable, moderately sticky and moderately plastic; few roots; common very fine tubular pores; clear silt and sand grains on faces of prisms; common distinct clay films along pores and on faces of peds; common

fine faint brown and black masses of iron accumulation; moderately acid (pH 6.0); gradual wavy boundary.

2Bt2—28 to 35 inches; light olive brown (2.5Y 5/4) silty clay loam, very pale brown (10YR 7/4) dry; weak coarse prismatic structure parting to moderate coarse subangular blocky; very hard, firm, moderately sticky and moderately plastic; few fine roots; common very fine tubular pores; common distinct clay films along pores and on faces of peds; common fine distinct reddish brown, gray, and black masses of iron accumulation and depletions; slightly acid (pH 6.2); diffuse wavy boundary.

2C—35 to 72 inches; olive brown (2.5Y 4/4) silt loam, very pale brown (10YR 7/4) dry; massive; hard, friable, slightly sticky and slightly plastic; common very fine tubular pores; common fine faint masses of iron accumulation; slightly acid (pH 6.4).

Typical Pedon Location

Map unit in which located: Amity silt loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 200 feet north and 2,600 feet east of the southwest corner of sec. 15, T. 11 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—27 to 35 percent

Profile:
Thickness of mollic epipedon—10 to 18 inches
Depth to bedrock—more than 60 inches
Characteristics of redoximorphic features—iron depletions at a depth of 10 to 18 inches and masses of iron accumulation in some areas

A horizon:
Hue—10YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—15 to 25 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 3 percent gravel

E horizon:
Hue—10YR moist; 5Y, 2.5Y, or 10YR dry
Value—3 to 5 moist, 6 or 7 dry
Chroma—0 to 2 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 30 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 3 percent gravel

2Bt horizon:
Hue—2.5Y or 10YR
Value—4 or 5 moist, 6 or 7 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—moderately acid to neutral

2C horizon:
Hue—2.5Y or 10YR
Value—4 or 5 moist, 6 or 7 dry

Chroma—2 to 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—15 to 30 percent
Reaction—moderately acid to neutral

Apt Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 50 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Taxonomic class: Fine, isotic, mesic Typic Haplohumults

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; clear smooth boundary.

A—1 to 6 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; strong fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine roots; many very fine irregular pores; very strongly acid (pH 4.8); clear smooth boundary.

AB—6 to 11 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and common medium roots; many very fine tubular pores; few very dark brown (10YR 2/2) organic coatings on faces of peds; few fine black (7.5YR 2/1) manganese masses and common fine dark brown (7.5YR 3/3) iron-manganese nodules that are spherical in matrix and very weakly cemented; very strongly acid (pH 4.8); clear smooth boundary.

Bt1—11 to 18 inches; dark brown (10YR 3/3) silty clay, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine, fine, and medium roots; many very fine and fine tubular pores; few distinct clay films along surface of pores; very strongly acid (pH 5.0); abrupt smooth boundary.

Bt2—18 to 27 inches; dark yellowish brown (10YR 3/4) silty clay, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine, fine, and medium roots; common very fine tubular pores; few distinct clay films on faces of peds and along surface of pores; very strongly acid (pH 5.0); clear smooth boundary.

Bt3—27 to 37 inches; strong brown (7.5YR 4/6) clay, light brown (7.5YR 6/4) dry; moderate fine and very fine subangular blocky structure; very hard, firm, moderately sticky and very plastic; few fine and medium roots; many very fine tubular pores; common distinct clay films on faces of peds and common prominent clay films along surface of pores; very strongly acid (pH 5.0); clear smooth boundary.

Bt4—37 to 51 inches; strong brown (7.5YR 4/6) clay, reddish yellow (7.5YR 6/6) dry; weak fine and medium subangular blocky structure; very hard, firm, moderately sticky and very plastic; few fine, medium, and coarse roots; many very fine tubular

pores; common distinct clay films on faces of peds and common prominent clay films along surface of pores; very strongly acid (pH 5.0); clear smooth boundary.

BCt—51 to 66 inches; strong brown (7.5YR 5/6) silty clay loam, reddish yellow (7.5YR 7/6) dry; weak medium and coarse subangular blocky structure; very hard, firm, moderately sticky and very plastic; few fine, medium, and coarse roots; many very fine tubular pores; few faint clay films on faces of peds and along surface of pores; very strongly acid (pH 5.0).

Typical Pedon Location

Map unit in which located: Apt silty clay loam in an area of Apt-McDuff complex, 5 to 30 percent slopes

Location in survey area: In an area of woodland about 10 feet north and 10 feet east of the southwest corner of sec. 23, T. 10 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—45 to 60 percent
Content of rock fragments—0 to 10 percent
Content of pararock fragments—0 to 35 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches, including upper part of Bt horizon
Depth to bedrock—more than 60 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 10YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam in upper part; silty clay loam or paragravelly silty clay loam in lower part (AB horizon, where present)
Content of clay—27 to 35 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 20 percent paragravel
Consistence—weakly smeary or moderately smeary

Bt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 to 6 moist or dry
Texture—silty clay, very paragravelly silty clay, or clay
Content of clay—45 to 60 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 35 percent paragravel and 0 to 5 percent paracobbles

BCt horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—silty clay loam, extremely paragravelly silty clay, or paragravelly clay
Content of clay—30 to 45 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 50 percent paragravel and 0 to 5 percent paracobbles

Aquents

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately slow to very slow
General landscape: Terraces and alluvial fans
Parent material: Silty or clayey alluvium or glaciolacustrine deposits
Slope: 0 to 3 percent
Elevation: 250 to 350 feet
Mean annual precipitation: 40 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 180 to 210 days

Taxonomic class: Mesic Aquents

Typical Pedon

A—0 to 10 inches; black (10YR 2/1) silt loam, weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid (pH 5.8); clear smooth boundary.

Cg1—10 to 40 inches; black (2.5Y 2/0) silt loam, weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid (pH 6.0); clear wavy boundary.

Cg2—40 to 60 inches; black (2.5Y 2/0) silty clay loam; massive; slightly hard, friable, sticky and plastic; many prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid (pH 6.5).

Typical Pedon Location

Map unit in which located: Aquents, 0 to 3 percent slopes
Location in survey area: In an area of urban land about 2,500 feet east of the southwest corner of sec. 32, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 60 percent
Content of rock fragments—0 to 5 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—at soil surface
Content of rock fragments—0 to 5 percent gravel
Reaction—strongly acid to neutral

A horizon:
Hue—2.5Y or 10YR
Value—2 or 3 moist
Chroma—0 to 2 moist or dry
Texture—silt loam
Content of clay—20 to 27 percent

Cg1 horizon:
Hue—neutral, 5Y, or 2.5Y
Value—2 or 3 moist

Chroma—0 to 2 moist or dry
Texture—silt loam, silty clay loam, silty clay, or clay
Content of clay—25 to 50 percent

Cg2 horizon:
Hue—neutral, 5Y, or 2.5Y
Value—2 or 3 moist
Chroma—0 to 2 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—30 to 70 percent

Awbrig Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
General landscape: Terraces
Parent material: Silty and clayey alluvium derived from igneous and sedimentary rock and glaciolacustrine deposits
Slope: 0 to 2 percent
Elevation: 180 to 600 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Vertic Albaqualfs

Typical Pedon

Ap1—0 to 2 inches; very dark grayish brown (10YR 3/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate very fine subangular blocky structure and moderate fine granular structure; hard, friable, moderately sticky and moderately plastic; many very fine roots; many fine irregular pores; few fine prominent yellowish brown (10YR 5/6) masses and stains of iron accumulation in root channels; strongly acid (pH 5.4); clear smooth boundary.

Ap2—2 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine and common fine roots; many very fine tubular and irregular pores; common fine black concretions; common fine faint and distinct dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) masses of iron accumulation; moderately acid (pH 6.5); abrupt irregular boundary.

2Bsst1—7 to 18 inches; very dark gray (10YR 3/1) clay, gray (10YR 5/1) dry; weak coarse prismatic structure with vertical cracks that are 0.5 inch wide or more when dry, appears massive when wet; extremely hard, very firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; few fine yellowish brown and black concretions; common slickensides and pressure faces; slightly acid (pH 6.3); clear wavy boundary.

2Bsst2—18 to 29 inches; very dark grayish brown (10YR 3/2) silty clay, dark grayish brown (10YR 4/2) dry; moderate medium and coarse prismatic structure parting to weak medium and fine subangular blocky; extremely hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; many faint to distinct clay films; many pressure faces; few slickensides; many medium distinct yellowish brown (10YR 5/4) masses of iron accumulation; slightly acid (pH 6.5); gradual irregular boundary.

2BCt—29 to 48 inches; grayish brown (10YR 5/2) silty clay loam, pale brown (10YR

6/3) dry; weak medium prismatic structure; hard, firm, moderately sticky and moderately plastic; many very fine tubular pores; many distinct very dark grayish brown (10YR 3/2) clay films on faces of peds and in pores; many fine prominent yellowish brown (10YR 5/6) and brown (7.5YR 4/4) masses of iron accumulation and many fine distinct gray (10YR 7/2) iron depletions; less than 5 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

2C—48 to 60 inches; dark brown (10YR 4/3) clay loam, pale brown (10YR 6/3) dry; massive; hard, firm, moderately sticky and moderately plastic; common very fine tubular pores; many distinct dark gray (10YR 4/1) iron depletions; neutral (pH 7.0).

Typical Pedon Location

Map unit in which located: Awbrig silty clay loam, 0 to 2 percent slopes

Location in survey area: In an area of pasture about 2,100 feet west and 40 feet north of the southeast corner of sec. 32, T. 16 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—50 to 60 percent
Content of rock fragments—0 to 5 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to abrupt textural change—5 to 12 inches
Characteristics of redoximorphic features—iron depletions at a depth of 6 to 12 inches and masses of iron accumulation in some areas
Content of rock fragments—0 to 5 percent

Ap horizon:
Hue—10YR
Value—3 moist, 5 or 6 dry
Chroma—2 or less moist or dry
Texture—silty clay loam
Content of clay—27 to 30 percent
Reaction—strongly acid to slightly acid

2Bsst horizon:
Hue—10YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—1 or 2 moist or dry
Texture—clay or silty clay
Content of clay—50 to 60 percent
Reaction—slightly acid or neutral

2BCt and 2C horizons:
Hue—2.5Y or 10YR
Value—4 or 5 moist, 6 dry
Chroma—1 to 4 moist or dry
Texture—clay loam or silty clay loam
Content of clay—27 to 40 percent
Reaction—neutral

Bashaw Series

Depth class: Very deep
Drainage class: Poorly drained

Permeability: Very slow
General landscape: Flood plains, terraces, and alluvial fans
Parent material: Clayey alluvium derived from basalt
Slope: 0 to 12 percent
Elevation: 120 to 500 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Very-fine, smectitic, mesic Xeric Endoaquerts (fig. 88)

Typical Pedon

A—0 to 3 inches; very dark gray (10YR 3/1) clay, dark gray (10YR 4/1) dry; moderate medium and fine subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine roots; many very fine pores; many fine distinct yellowish red (5YR 4/6) masses of iron accumulation; moderately acid (pH 5.8); abrupt smooth boundary.

Bssg1—3 to 14 inches; black (N 2/0) clay, very dark gray (N 3/0) dry; weak coarse prismatic and angular blocky structure when moist or dry, appears massive when

Figure 88.—Typical profile of a Bashaw soil, which is a Vertisol. Note cracks and prismatic structure.

wet; very firm, very hard, very sticky and very plastic; common very fine roots; many very fine pores; few fine distinct yellowish red (5YR 5/6) masses of iron accumulation; common fine dark yellowish brown (10YR 4/6) and black (10YR 2/1) concretions; few slickensides moderately acid (pH 6.0); clear smooth boundary.

Bssg2—14 to 31 inches; black (N 2/0) clay, very dark gray (N 3/0) dry; massive; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine pores; few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; common fine dark yellowish brown (10YR 4/6) and black (10YR 2/1) concretions; few slickensides; neutral (pH 6.6); gradual smooth boundary.

Bssg3—31 to 48 inches; very dark gray (N 3/0) clay, dark gray (N 4/0) dry; massive; very hard, very firm, very sticky and very plastic; common fine gray weathered coarse fragments; few roots; few very fine pores; common medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation; common intersecting slickensides; neutral (pH 7.0); abrupt smooth boundary.

Cg—48 to 60 inches; dark grayish brown (2.5Y 4/2) clay, light brownish gray (2.5Y 6/2) dry; massive; very hard, firm, moderately sticky and moderately plastic; common very fine pores; many medium distinct dark brown (7.5YR 3/2) and dark reddish brown (5YR 3/2) masses of iron accumulation and few medium faint dark gray (N 4/0) iron depletions; neutral (pH 7.0).

Typical Pedon Location

Map unit in which located: Bashaw clay, flooded, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 2,300 feet east and 1,500 feet south of the northwest corner of sec. 9, T. 6 S, R. 1 W.

Range in Characteristics

Particle-size control section:
Content of clay—60 to 70 percent

Profile:
Depth to bedrock—more than 60 inches
Hue—neutral or 5Y, 2.5Y, or 10YR
Characteristics of redoximorphic features—chroma of 1 or less with masses of iron accumulation at soil surface

A horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—1 or less moist or dry
Texture—clay or silty clay loam
Content of clay—35 to 70 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 3 percent gravel

Bssg horizon:
Value—2 to 4 moist, 3 to 6 dry
Chroma—1 or 2 moist or dry
Texture—clay
Content of clay—55 to 70 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 3 percent gravel
Other features—few to common intersecting slickensides

Cg horizon:
Value—2 to 4 moist, 3 to 6 dry
Chroma—1 or 2 moist or dry

Texture—clay, silty clay, or sandy clay
Content of clay—45 to 70 percent
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent gravel

Bellpine Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 2 to 60 percent
Elevation: 300 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, active, mesic Xeric Haplohumults

Typical Pedon

Ap—0 to 6 inches; dark reddish brown (5YR 3/3) silty clay loam, reddish brown (5YR 5/4) dry; moderate fine and medium subangular blocky structure and weak very fine to medium granular; hard, friable, slightly sticky and moderately plastic; many very fine roots; many very fine irregular pores; moderately acid (pH 5.6); clear smooth boundary.

BA—6 to 10 inches; dark reddish brown (5YR 3/4) silty clay loam, reddish brown (5YR 4/4) dry; moderate very fine and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine and fine tubular pores; 3 percent gravel at lower boundary; moderately acid (pH 5.6); abrupt wavy boundary.

Bt1—10 to 20 inches; dark red (2.5YR 3/6) silty clay, red (2.5YR 4/6) dry; moderate fine and medium subangular blocky structure; extremely hard, very firm, very sticky and very plastic; common very fine roots; many very fine and fine tubular pores; common distinct clay films on faces of peds and along pores; 3 percent fine gravel; 5 percent yellowish brown paragravel; strongly acid (pH 5.4) gradual wavy boundary.

Bt2—20 to 26 inches; dark red (2.5YR 3/6) paragravelly clay, red (2.5YR 4/6) dry; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; many very fine tubular pores; common distinct clay films; 20 percent yellowish brown paragravel; strongly acid (pH 5.2); abrupt wavy boundary.

Crt—26 inches; pinkish gray (7.5YR 7/2) and reddish brown (5YR 5/4) weakly cemented sandstone; many prominent reddish brown (5YR 4/4) and dark red (2.5YR 3/6) clay films on fragments; thin tongues of Bt horizon material extending into horizon.

Typical Pedon Location

Map unit in which located: Bellpine silty clay loam in an area of Bellpine-Jory complex, 12 to 20 percent slopes
Location in survey area: In a cultivated area about 700 feet west and 600 feet north of the southeast corner of sec. 34, T. 12 S., R. 6 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 55 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—5 to 35 percent

Profile:
Depth to bedrock—20 to 40 inches to a weakly cemented paralithic contact
Base saturation—less than 35 percent throughout lower part of argillic horizon

A horizon:
Hue—7.5YR or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—strongly acid or moderately acid

BA horizon:
Hue—7.5YR or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 to 6 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 5 percent gravel

Bt horizon:
Hue—5YR or 2.5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—silty clay, clay, very paragravelly silty clay, or paragravelly clay
Content of clay—40 to 55 percent
Reaction—very strongly acid to moderately acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—5 to 20 percent paragravel in upper part and 5 to 50 percent paragravel in lower part

Blachly Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 60 percent
Elevation: 1,300 to 1,800 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 180 days

Taxonomic class: Fine, isotic, mesic Typic Dystrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 7 inches; dark brown (7.5YR 3/3) loam, strong brown (7.5YR 5/6) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine and few medium roots; many very fine and fine irregular pores; common fine dark reddish brown (5YR 3/2) iron-manganese concretions that are spherical in matrix and weakly cemented; 5 percent gravel and 3 percent cobbles; strongly acid (pH 5.2); clear smooth boundary.

BA—7 to 16 inches; brown (7.5YR 4/4) clay loam, strong brown (7.5YR 5/6) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; common fine dark reddish brown (5YR 3/2) iron-manganese concretions that are spherical in matrix and weakly cemented; 5 percent gravel and 3 percent cobbles; 5 percent paragravel; strongly acid (pH 5.1); clear smooth boundary.

2Bw1—16 to 27 inches; yellowish red (5YR 4/6) paragravelly silty clay loam, yellowish red (5YR 5/6) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; many fine tubular pores; 10 percent gravel and 3 percent cobbles; 10 percent paragravel; very strongly acid (pH 5.0); gradual smooth boundary.

2Bw2—27 to 54 inches; yellowish red (5YR 4/6) paragravelly silty clay, reddish yellow (5YR 6/6) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; common fine tubular pores; 5 percent gravel and 2 percent cobbles; 15 percent paragravel and 2 percent paracobbles; very strongly acid (pH 4.8); gradual smooth boundary.

2Bw3—54 to 65 inches; yellowish red (5YR 5/6) silty clay, reddish yellow (5YR 6/6) dry; moderate coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; common fine tubular pores; many faint pressure faces when moist, not discernible when dry; 5 percent gravel and 2 percent cobbles; 5 percent paragravel and 2 percent paracobbles; very strongly acid (pH 4.8); gradual smooth boundary.

2BC—65 to 96 inches; reddish yellow (5YR 6/6) silty clay loam, reddish yellow (7.5YR 7/6) dry; weak medium and coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few fine tubular pores; many faint pressure faces when moist, not discernible when dry; 5 percent gravel; 5 percent paragravel and 3 percent paracobbles; very strongly acid (pH 4.8).

Typical Pedon Location

Map unit in which located: Blachly loam in an area of Blachly-Kilowan complex, 5 to 30 percent slopes

Location in survey area: In an area of woodland about 2,000 feet north and 1,575 feet west of the southeast corner of sec. 28, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—0 to 15 percent
Content of pararock fragments—0 to 20 percent

Profile:
Depth to bedrock—more than 80 inches
Reaction—very strongly acid or strongly acid

A horizon:
Hue—7.5YR, 5YR, or 2.5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 to 4 moist, 4 to 6 dry
Texture—loam
Content of clay—15 to 25 percent
Content of rock fragments—0 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 10 percent
Consistence—moderately smeary or weakly smeary

BA horizon:
Hue—7.5YR, 5YR, or 2.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 or 5 moist, 5 or 6 dry
Texture—clay loam or loam
Content of clay—20 to 35 percent
Content of rock fragments—0 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 10 percent
Consistence—moderately smeary or weakly smeary

2Bw horizon:
Hue—5YR or 2.5YR moist, 5YR or 7.5YR dry
Value—4 or 5 moist, 5 or 6 dry
Chroma—5 or 6 moist or dry
Texture—paragravelly silty clay loam, paragravelly silty clay, or silty clay
Content of clay—35 to 50 percent
Content of rock fragments—0 to 10 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 20 percent paragravel and 0 to 5 percent paracobbles

2BC horizon:
Hue—5YR or 2.5YR moist, 5YR or 7.5YR dry
Value—4 or 5 moist, 6 or 7 dry
Chroma—5 or 6 moist or dry
Texture—silty clay loam, silty clay, or paragravelly silty clay
Content of clay—35 to 45 percent
Content of rock fragments—0 to 5 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 20 percent paragravel and 0 to 5 percent paracobbles

Blodgett Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope: 30 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Loamy-skeletal, isotic, frigid, shallow Typic Dystrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 6 inches; brown (10YR 4/3) very gravelly medial loam, yellowish brown (10YR 5/4) dry; weak very fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine interstitial pores; 40 percent gravel and 5 percent cobbles; 5 percent paragravel and 2 percent paracobbles; very strongly acid pH (5.0); clear smooth boundary.

Bw1—6 to 11 inches; yellowish brown (10YR 5/4) extremely gravelly loam, light yellowish brown (10YR 6/4) dry; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; moderately smeary; common very fine and fine and few medium and coarse roots; many fine irregular pores; 50 percent gravel, 10 percent cobbles, and 5 percent stones; 15 percent paragravel and 5 percent paracobbles; very strongly acid pH (5.0); gradual wavy boundary.

Bw2—11 to 16 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, very pale brown (10YR 7/4) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; weakly smeary; common fine and medium and few coarse roots; many fine irregular pores; 20 percent gravel, 40 percent cobbles, and 5 percent stones; 15 percent paragravel and 5 percent paracobbles; very strongly acid pH (5.0); abrupt wavy boundary.

Cr—16 to 19 inches; weakly cemented sandstone; abrupt wavy boundary.

R—19 inches; very strongly cemented sandstone; roots along fracture planes; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Blodgett very gravelly medial loam in an area of Chintimini-Blodgett complex, 60 to 90 percent slopes

Location in survey area: In an area of woodland about 1,320 feet south and 1,100 feet west of the northeast corner of sec. 22, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 25 percent (apparent, by field estimates)
Content of rock fragments—35 to 70 percent
Content of pararock fragments—10 to 20 percent

Profile:
Depth to bedrock—12 to 17 inches to a weakly cemented paralithic contact; 13 to 20 inches to a very strongly cemented lithic contact
Reaction—very strongly acid or strongly acid
Hue—10YR or 7.5YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 to 4 moist, 3 to 5 dry
Chroma—2 or 3 moist and 2 to 4 dry
Texture—very gravelly medial loam
Content of clay—12 to 20 percent
Content of rock fragments—35 to 50 percent gravel, 5 to 10 percent cobbles, and 0 to 10 percent stones
Content of pararock fragments—5 to 10 percent paragravel and 0 to 5 percent paracobbles

Bw horizon:
Value—4 to 6 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—extremely gravelly loam, extremely cobbly loam, or very gravelly loam
Content of clay—15 to 25 percent
Content of rock fragments—20 to 50 percent gravel, 10 to 40 percent cobbles, and 0 to 10 percent stones
Content of pararock fragments—10 to 20 percent paragravel and 0 to 5 percent paracobbles

Bohannon Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 90 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Fine-loamy, isotic, mesic Andic Dystrudepts

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt wavy boundary.

A—2 to 10 inches; very dark grayish brown (10YR 3/2) gravelly medial loam, brown (10YR 4/3) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine irregular pores; common fine black (7.5YR 2/1) and dark brown (7.5YR 3/2) iron-manganese nodules that are spherical in matrix and weakly cemented; 25 percent gravel and 3 percent cobbles; 10 percent paragravel; very strongly acid (pH 4.8); clear smooth boundary.

AB—10 to 19 inches; dark brown (7.5YR 3/3) gravelly loam, brown (7.5YR 5/3) dry; moderate very fine and fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine irregular pores; common fine black (7.5YR 2/1) and dark brown (7.5YR 3/2) iron-manganese nodules that are spherical in matrix and weakly cemented; 20 percent gravel and 3 percent cobbles; 15 percent paragravel; very strongly acid (pH 4.8); clear wavy boundary.

Bw1—19 to 27 inches; dark brown (7.5YR 3/4) gravelly loam, brown (7.5YR 5/4) dry; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores; 20 percent gravel and 3 percent cobbles; 15 percent paragravel; very strongly acid (pH 5.0); gradual smooth boundary.

Bw2—27 to 34 inches; brown (7.5YR 4/4) gravelly loam, brown (7.5YR 5/4) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores; 20 percent gravel and 3 percent cobbles; 15 percent paragravel; very strongly acid (pH 5.0); abrupt wavy boundary.

Cr—34 inches; moderately cemented sandstone; fractures 18 inches to less than 39 inches apart; few coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Bohannon gravelly medial loam in an area of Bohannon-Preacher complex, 60 to 90 percent slopes
Location in survey area: In an area of woodland about 1,500 feet south and 2,640 feet west of the northeast corner of sec. 2, T. 15 S., R. 9 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent
Content of rock fragments—10 to 30 percent
Content of pararock fragments—0 to 20 percent

Profile:
Thickness of umbric epipedon—7 to 18 inches
Depth to bedrock—20 to 40 inches to a moderately cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 10YR

A and AB horizons, where present:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture of A horizon—gravelly medial loam
Texture of AB horizon—gravelly loam
Content of clay—15 to 25 percent
Content of rock fragments—10 to 25 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 15 percent paragravel
Consistence—weakly smeary or moderately smeary

Bw horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—loam, gravelly loam, or cobbly clay loam
Content of clay—18 to 30 percent
Content of rock fragments—5 to 25 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones
Content of pararock fragments—0 to 20 percent paragravel and 0 to 5 percent paracobbles

Briedwell Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Terraces
Parent material: Gravelly alluvium
Slope: 0 to 20 percent
Elevation: 200 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Loamy-skeletal, mixed, superactive, mesic Ultic Haploxerolls

Typical Pedon

Ap—0 to 7 inches; dark brown (7.5YR 3/3) gravelly loam, brown (10YR 5/3) dry; very fine subangular blocky structure parting to moderate fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 25 percent gravel; strongly acid (pH 5.5); abrupt smooth boundary.

Bw—7 to 17 inches; dark brown (7.5YR 3/3) gravelly silty clay loam, dark brown (7.5YR 4/4) dry; moderate very fine and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; 25 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

2C1—17 to 30 inches; dark brown (7.5YR 4/4) very gravelly clay loam, strong brown (7.5YR 5/6) dry; massive; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common pores; 40 percent gravel and 5 percent cobbles; moderately acid (pH 6.0); abrupt smooth boundary

2C2—30 to 60 inches; yellowish brown (10YR 5/4 and 5/6), grayish brown (10YR 5/2), and reddish brown (5YR 4/4) extremely gravelly clay loam, brownish yellow (10YR 6/6) dry; massive; very hard, firm, moderately sticky and moderately plastic; few very fine and fine pores; clay films on surface of rock fragments; 50 percent gravel and 10 percent cobbles; moderately acid (pH 6.0).

Typical Pedon Location

Map unit in which located: Briedwell gravelly loam, 0 to 7 percent slopes

Location in survey area: In a cultivated area about 1,400 feet west and 700 feet north of the southeast corner of sec. 16, T. 10 S., R. 6 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 35 percent
Content of rock fragments—35 to 60 percent

Profile:
Thickness of mollic epipedon—12 to 20 inches
Depth to bedrock—more than 60 inches

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—gravelly loam
Content of clay—15 to 25 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—15 to 25 percent gravel and 0 to 3 percent cobbles

Bw horizon:
Hue—10YR or 7.5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—cobbly loam, gravelly silty clay loam, gravelly clay loam, or clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—5 to 30 percent gravel and 0 to 10 percent cobbles

2C horizon:
Hue—10YR, 7.5YR, or 5YR
Value—3 to 5 moist, 5 or 6 dry

Chroma—2 to 6 moist, 4 to 6 dry
Texture—extremely cobbly clay loam, extremely gravelly clay loam, very gravelly loam, or very gravelly clay loam
Content of clay—25 to 30 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—30 to 75 percent gravel, 5 to 35 percent cobbles, and 0 to 3 percent stones

Burntwoods Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Ancient landslide deposits on mountains
Parent material: Recent loamy colluvium over older loamy colluvium derived from sandstone and siltstone
Slope: 5 to 60 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Medial-skeletal over loamy-skeletal, mixed over isotic, frigid Typic Fulvudands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; clear wavy boundary.
Oe—1 to 3 inches; moderately decomposed plant material; abrupt wavy boundary.
A1—3 to 12 inches; very dark grayish brown (10YR 3/2) extremely gravelly medial loam, brown (10YR 4/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium roots; many very fine and fine and few medium interstitial pores; 50 percent gravel and 15 percent cobbles; 10 percent paragravel and 2 percent paracobbles; very strongly acid (pH 5.0); clear wavy boundary.
A2—12 to 19 inches; dark brown (10YR 3/3) very gravelly medial loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine, fine, and medium roots; many very fine and fine and common medium tubular pores; 40 percent gravel and 10 percent cobbles; 25 percent paragravel and 2 percent paracobbles; strongly acid (pH 5.1); abrupt wavy boundary.
2BA—19 to 27 inches; brown (10YR 4/3) very gravelly loam, yellowish brown (10YR 5/4) dry; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium roots; many very fine and fine and common medium tubular pores; 30 percent gravel and 15 percent cobbles; 20 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.3); gradual wavy boundary.
2Bw1—27 to 41 inches; yellowish brown (10YR 5/4) very gravelly loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine and common medium and coarse roots; common fine and few very fine and medium tubular pores; 30 percent gravel and 15 percent cobbles; 20 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.3); gradual wavy boundary.

2Bw2—41 to 53 inches; yellowish brown (10YR 5/4) extremely gravelly loam, very pale brown (10YR 8/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine and common medium and coarse roots; common fine and few very fine and medium tubular pores; 45 percent gravel and 15 percent cobbles; 15 percent paragravel and 10 percent paracobbles; strongly acid (pH 5.3); gradual wavy boundary.

2Bw3—53 to 67 inches; yellowish brown (10YR 5/4) extremely gravelly loam, very pale brown (10YR 8/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common medium and coarse roots; common fine and medium and few very fine tubular pores; 45 percent gravel and 20 percent cobbles; 10 percent paragravel and 10 percent paracobbles; strongly acid (pH 5.2).

Typical Pedon Location

Map unit in which located: Burntwoods extremely gravelly medial loam in an area of Burntwoods-Oldblue complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 2,400 feet north and 1,010 feet east of the southwest corner of sec. 20, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:

Content of clay—20 to 30 percent (apparent, by field estimates)

Content of rock fragments—35 to 75 percent

Content of pararock fragments—10 to 40 percent

Profile:

Thickness of umbric epipedon—15 to 25 inches

Depth to bedrock—more than 60 inches to a weakly cemented, highly weathered paralithic contact

Reaction—very strongly acid or strongly acid

Hue—10YR or 7.5YR

Consistence of upper 15 to 25 inches of solum—strongly smeary or moderately smeary

A horizon:

Value—2 or 3 moist, 3 to 5 dry

Chroma—2 or 3 moist or dry

Texture—extremely gravelly medial loam in upper part and extremely gravelly medial loam or very gravelly medial loam in lower part

Content of clay—12 to 20 percent

Content of rock fragments—35 to 50 percent gravel, 5 to 20 percent cobbles, and 0 to 10 percent stones

Content of pararock fragments—10 to 30 percent paragravel and 0 to 5 percent paracobbles

2BA horizon, where present:

Value—3 or 4 moist, 4 or 5 dry

Chroma—3 or 4 moist or dry

Texture—very gravelly loam, extremely gravelly loam, or extremely gravelly clay loam

Content of clay—15 to 30 percent

Content of rock fragments—30 to 50 percent gravel, 5 to 20 percent cobbles, and 0 to 10 percent stones

Content of pararock fragments—10 to 30 percent paragravel and 0 to 5 percent paracobbles

2Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—extremely gravelly loam, very gravelly loam, or extremely gravelly clay loam
Content of clay—20 to 30 percent
Content of rock fragments—30 to 50 percent gravel, 10 to 20 percent cobbles, and 0 to 10 percent stones
Content of pararock fragments—10 to 30 percent paragravel and 5 to 10 percent paracobbles

Camas Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Very rapid
General landscape: Flood plains
Parent material: Sandy and gravelly alluvium derived from igneous rock
Slope: 0 to 3 percent
Elevation: 100 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Sandy-skeletal, mixed, mesic Fluventic Haploxerolls

Typical Pedon

Ap1—0 to 2 inches; dark brown (10YR 3/3) gravelly sandy loam, brown (10YR 5/3) dry; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; many roots; many fine irregular pores; 20 percent gravel; slightly acid (pH 6.3); clear smooth boundary.
Ap2—2 to 10 inches; dark brown (10YR 3/3) gravelly sandy loam, brown (10YR 5/3) dry; weak coarse and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many roots; many fine irregular pores; 25 percent gravel; slightly acid (pH 6.3); clear smooth boundary.
C1—10 to 13 inches; brown (10YR 4/3) gravelly sandy loam, pale brown (10YR 6/3) dry; massive; soft, very friable, nonsticky and nonplastic; many roots; many fine irregular pore; variegated dark- and light-colored sand grains; 30 percent gravel; slightly acid (pH 6.3); abrupt smooth boundary.
2C2—13 to 60 inches; stratified extremely gravelly coarse sand to very gravelly loamy sand, dominantly brown (10YR 4/3), dark brown (10YR 3/3), and grayish brown (10YR 4/2) dry; single grain; loose; 50 percent gravel and 20 percent cobbles; slightly acid (pH 6.3).

Typical Pedon Location

Map unit in which located: Camas gravelly sandy loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 1,000 feet north and 1,300 feet west of the southeast corner of sec. 19, T. 10 S., R. 2 W.

Range in Characteristics

Particle-size control section:
Content of clay—1 to 10 percent
Content of rock fragments—35 to 85 percent

Profile:
Thickness of mollic epipedon—10 to 14 inches
Depth to bedrock—more than 60 inches
Depth to stratified layer—10 to 20 inches
Reaction—moderately acid to neutral
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 2 to 5 dry
Chroma—2 or 3 moist or dry
Texture—gravelly sandy loam
Content of clay—5 to 15 percent
Content of rock fragments—15 to 35 percent gravel and 0 to 10 percent cobbles

C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—gravelly sandy loam, very gravelly loamy sand, or gravelly sand
Content of clay—5 to 15 percent
Content of rock fragments—20 to 50 percent gravel and 0 to 20 percent cobbles

2C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—stratified extremely gravelly coarse sand to very gravelly loamy sand
Content of clay—1 to 8 percent
Content of rock fragments—35 to 70 percent gravel and 3 to 20 percent cobbles

Caterl Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope: 30 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Medial-skeletal, ferrihydritic, frigid Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
A1—1 to 9 inches; very dark grayish brown (10YR 3/2) gravelly medial loam, dark brown (10YR 4/3) dry; moderate very fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; many fine and very fine and few medium and coarse roots, many very fine tubular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish brown (5YR 4/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 25 percent gravel and 5 percent cobbles; very strongly acid (pH 4.9); clear smooth boundary.
A2—9 to 18 inches; very dark grayish brown (10YR 3/2) very gravelly medial loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard,

friable, slightly sticky and slightly plastic; moderately smeary; common fine and few medium and coarse roots; many very fine tubular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish brown (5YR 4/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 35 percent gravel and 10 percent cobbles; very strongly acid (pH 5.0); gradual smooth boundary.

Bw—18 to 37 inches; dark yellowish brown (10YR 4/4) very gravelly medial loam, yellowish brown (10YR 5/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine, medium, and coarse roots; many very fine tubular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish brown (5YR 4/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 40 percent gravel and 15 percent cobbles; strongly acid (pH 5.2); gradual wavy boundary.

C—37 to 55 inches; strong brown (7.5YR 4/6) extremely cobbly medial loam, reddish yellow (7.5YR 6/6) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine, medium, and coarse roots; many very fine tubular pores; few medium dark reddish brown (5YR 3/4) and yellowish brown (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 45 percent gravel, 30 percent cobbles, and 5 percent stones; strongly acid (pH 5.4); abrupt wavy boundary.

R—55 inches; indurated, highly fractured basalt; fractures 4 inches to less than 18 inches apart; few medium and coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Caterl gravelly medial loam in an area of Caterl-Murtip-Laderly complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 500 feet north and 2,600 feet west of the southeast corner of sec. 5, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent (apparent, by field estimates)
Content of rock fragments—35 to 80 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—40 to 60 inches to an indurated, highly fractured lithic contact
Reaction—very strongly acid or strongly acid
Hue—10YR, 7.5YR, or 5YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 dry
Texture—gravelly medial loam in upper part and gravelly medial loam or very gravelly medial loam in lower part
Content of clay—12 to 20 percent
Content of rock fragments—15 to 45 percent gravel and 0 to 10 percent cobbles

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—2 to 4 moist, 4 to 6 dry
Texture—very gravelly medial loam, very gravelly medial clay loam, or very cobbly medial clay loam
Content of clay—18 to 30 percent

Content of rock fragments—15 to 50 percent gravel and 0 to 30 percent cobbles

C horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—extremely cobbly medial loam, extremely gravelly medial loam, or extremely cobbly medial clay loam
Content of clay—12 to 30 percent
Content of rock fragments—30 to 70 percent gravel, 0 to 30 percent cobbles, and 0 to 10 percent stones

Chapman Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Flood plains
Parent material: Loamy alluvium
Slope: 0 to 3 percent
Elevation: 170 to 1,000 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Cumulic Ultic Haploxerolls

Typical Pedon

Ap—0 to 8 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure and moderate very fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 2 percent gravel; moderately acid (pH 5.6); abrupt smooth boundary.

A—8 to 14 inches; very dark grayish brown (10YR 3/2) clay loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine roots; many medium and very fine tubular pores; 2 percent gravel; moderately acid (pH 5.8); clear wavy boundary.

BA—14 to 23 inches; dark brown (7.5YR 3/3) loam, brown (10YR 5/3) dry; weak fine prismatic structure parting to moderate fine subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; many medium, fine, and very fine tubular pores; moderately acid (pH 6.0); gradual smooth boundary.

Bw—23 to 33 inches; brown (10YR 4/3) loam, brown (10YR 5/3) dry; weak medium prismatic structure and moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; few medium and many very fine tubular pores; common faint dark brown (7.5YR 3/2) coatings in larger pores; slightly acid (pH 6.2); clear wavy boundary.

BC—33 to 42 inches; dark yellowish brown (10YR 3/4) loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few medium and many fine and very fine tubular pores; few prominent dark brown (7.5YR 3/2) coatings in pores; 10 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

C1—42 to 50 inches; brown (10YR 4/3) gravelly sandy loam, yellowish brown (10YR 5/4) dry; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine pores; 25 percent gravel; neutral (pH 6.6); clear wavy boundary.

C2—50 to 60 inches; dark brown (10YR 3/3) very gravelly sandy loam; single grain; loose, nonsticky and nonplastic; 50 percent gravel; neutral (pH 6.8).

Typical Pedon Location

Map unit in which located: Chapman loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 2,600 feet east and 1,300 feet south of the northwest corner of sec. 29, T. 15 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 35 percent
Content of rock fragments—0 to 10 percent

Profile:
Thickness of mollic epipedon—20 to 30 inches
Depth to bedrock—more than 60 inches
Hue—10YR or 7.5YR

Ap, A, and BA horizons:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist or dry
Texture of Ap horizon—loam
Texture of A and BA horizons—loam or clay loam
Content of clay—18 to 35 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

Bw and BC horizons:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—loam or clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent gravel

C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—gravelly sandy loam, gravelly loam, or very gravelly sandy loam
Content of clay—3 to 20 percent
Reaction—slightly acid or neutral
Content of rock fragments—20 to 50 percent gravel

Chehalem Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
General landscape: Terraces and alluvial fans
Parent material: Clayey alluvium derived from sedimentary and igneous rock
Slope: 0 to 12 percent
Elevation: 150 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Ap—0 to 7 inches; very dark brown (10YR 2/2) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few fine and very fine tubular pores; 1 percent weathered siltstone particles 1 to 2 millimeters in size; moderately acid (pH 5.6); abrupt smooth boundary.

A—7 to 11 inches; very dark brown (10YR 2/2) silty clay loam, dark gray (10YR 4/1) dry; weak very fine subangular blocky structure; slightly hard, firm, slightly sticky and moderately plastic; many fine and very fine roots; many very fine tubular pores; 1 percent weathered siltstone particles 1 to 2 millimeters in size; moderately acid (pH 5.8); abrupt smooth boundary.

AB—11 to 23 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure parting to moderate fine granular; slightly hard, firm, moderately sticky and moderately plastic; many very fine roots; many fine and very fine tubular pores; 1 percent weathered siltstone particles 1 to 2 millimeters in size; moderately acid (pH 5.8); clear smooth boundary.

Bw1—23 to 36 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine tubular pores; few faint darker colored coatings on vertical surface of peds; 5 percent light-colored siltstone paragravel; many fine prominent yellowish brown (10YR 5/6) and reddish brown (5YR 5/4) masses of iron accumulation; moderately acid (pH 6.0); clear smooth boundary.

Bw2—36 to 49 inches; very dark brown (10YR 2/2) silty clay, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; very hard, moderately firm, moderately sticky and moderately plastic; many very fine tubular pores; few faint coatings on vertical surface of peds; 1 percent siltstone paragravel; many fine prominent yellowish brown (10YR 5/6) and reddish brown (5YR 5/4) masses of iron accumulation; moderately acid (pH 5.8); gradual smooth boundary.

C—49 to 60 inches; very dark grayish brown (10YR 3/2) silty clay, dark grayish brown (10YR 4/2) dry; massive; very hard, firm, moderately sticky and moderately plastic; few very fine tubular pores; 10 percent weathered siltstone fragments; 10 percent siltstone paragravel; few fine prominent reddish brown (5YR 5/4) masses of iron accumulation; moderately acid (pH 6.0).

Typical Pedon Location

Map unit in which located: Chehalem silty clay loam, 3 to 12 percent slopes
Location in survey area: In a cultivated area about 500 feet west and 1,600 feet south of the northeast corner of sec. 6, T. 3 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 10 percent paragravel

Profile:
Thickness of mollic epipedon—24 inches or more
Depth to bedrock—more than 60 inches
Reaction—moderately acid or slightly acid

Depth to redoximorphic features—16 to 20 inches to iron depletions and masses of iron accumulation

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 5 percent paragravel

AB horizon:
Hue—10YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—30 to 40 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 5 percent paragravel

Bw horizon:
Hue—10YR or 2.5Y
Value—2 to 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 15 percent paragravel

C horizon:
Hue—10YR or 2.5Y
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay, paragravelly clay loam, clay, or silty clay loam
Content of clay—30 to 50 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 35 percent paragravel

Chehalis Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Flood plains
Parent material: Silty and loamy alluvium
Slope: 0 to 3 percent
Elevation: 30 to 1,000 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Cumulic Ultic Haploxerolls

Typical Pedon

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silty clay loam, brown (10YR

5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many fine roots; many very fine tubular pores; slightly acid (pH 6.2); abrupt smooth boundary.

A—8 to 16 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many fine roots; many very fine tubular pores; slightly acid (pH 6.2); clear smooth boundary.

Bw1—16 to 38 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, firm, sticky and plastic; common fine roots; common fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.

Bw2—38 to 45 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; few fine roots; common fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.

C—45 to 60 inches; dark yellowish brown (10YR 3/4), stratified fine sandy loam to silty clay loam, brown (10YR 5/3) dry; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; moderately acid (pH 6.0).

Typical Pedon Location

Map unit in which located: Chehalis silty clay loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 550 feet west and 1,600 feet south of the northeast corner of sec. 9, T. 1 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 35 percent
Content of rock fragments—0 to 5 percent

Profile:
Thickness of mollic epipedon—24 inches or more
Depth to bedrock—more than 60 inches
Hue—10YR or 7.5YR

Ap and A horizons:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam or silty clay loam
Content of clay—15 to 35 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

Bw horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent gravel

C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist, 2 to 4 dry
Texture—stratified fine sandy loam to silty clay loam
Content of clay—15 to 35 percent

Reaction—moderately acid to neutral
Content of rock fragments—0 to 15 percent gravel

Chehulpum Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
General landscape: Hills
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope: 3 to 60 percent
Elevation: 200 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Loamy, mixed, superactive, mesic shallow Ultic Haploxerolls

Typical Pedon

A1—0 to 4 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine irregular and tubular pores; moderately acid (pH 5.9); clear smooth boundary.
A2—4 to 12 inches; very dark brown (10YR 2/2) paragravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine and fine tubular pores; 15 percent sandstone and siltstone paragravel; moderately acid (pH 5.9); abrupt smooth boundary.
2Cr—12 to 22 inches; moderately cemented, semiconsolidated sandstone.

Typical Pedon Location

Map unit in which located: Chehulpum silt loam in an area of Steiwer-Chehulpum complex, 3 to 12 percent slopes
Location in survey area: In an area of oak woodland about 100 feet west and 300 feet south of the northeast corner of sec. 25, T. 9 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent
Content of rock fragments—0 to 20 percent
Content of pararock fragments—5 to 35 percent

Profile:
Thickness of mollic epipedon—10 to 20 inches
Depth to bedrock—10 to 20 inches to a moderately cemented paralithic contact
Reaction—moderately acid or slightly acid
Hue—10YR or 7.5YR

A1 horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—18 to 27 percent
Content of rock fragments—0 to 5 percent gravel

Content of pararock fragments—0 to 10 percent paragravel

A2 horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—paragravelly silt loam, gravelly loam, silt loam, silty clay loam, or clay loam
Content of clay—20 to 30 percent
Content of rock fragments—0 to 20 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—5 to 35 percent paragravel

Chintimini Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium derived from sandstone and siltstone
Slope: 20 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Loamy-skeletal, isotic, frigid Andic Dystrudepts

Typical Pedon

Oi—0 to 4 inches; slightly decomposed plant material; abrupt smooth boundary.

A—4 to 9 inches; dark brown (10YR 3/3) very gravelly medial loam, brown (10YR 5/3) dry; moderate very fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine irregular pores; 50 percent gravel and 5 percent cobbles; 10 percent paragravel and 3 percent paracobbles; very strongly acid (pH 4.9); clear smooth boundary.

AB—9 to 20 inches; brown (10YR 4/3) extremely gravelly medial loam, pale brown (10YR 6/3) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine and common medium and coarse roots; many very fine and fine tubular pores; 45 percent gravel and 15 percent cobbles; 15 percent paragravel and 5 percent paracobbles; very strongly acid (pH 4.9); clear wavy boundary.

Bw—20 to 38 inches; yellowish brown (10YR 5/4) very cobbly clay loam, very pale brown (10YR 7/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; moderately smeary; common very fine and fine and few medium and coarse roots; many very fine and fine and few medium tubular pores; 30 percent gravel and 20 percent cobbles; 30 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.1); clear wavy boundary.

C—38 to 47 inches; yellowish brown (10YR 5/6) very paragravelly clay loam, yellow (10YR 8/6) dry; massive; hard, firm, moderately sticky and moderately plastic; moderately smeary; few fine, medium, and coarse roots between peds; common fine tubular pores; 5 percent cobbles; 35 percent paragravel; very strongly acid (pH 5.0); clear wavy boundary.

Cr—47 to 51 inches; weakly cemented, partially fractured sandstone; fractures 18 inches to less than 39 inches apart; few fine, medium, and coarse roots between fracture planes; abrupt wavy boundary.

R—51 inches; strongly cemented sandstone; fractures 4 inches to less than 18 inches apart; few fine, medium, and coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Chintimini very gravelly medial loam in an area of Chintimini-Blodgett complex, 60 to 90 percent slopes

Location in survey area: In an area of woodland about 2,550 feet south and 2,500 feet east of the northwest corner of sec. 23, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 30 percent (apparent, by field estimates)
Content of rock fragments—35 to 65 percent
Content of pararock fragments—more than 35 percent

Profile:
Depth to bedrock—40 to 60 inches to a weakly cemented paralithic contact, 50 to 70 inches to a strongly cemented lithic contact
Reaction in solum—very strongly acid or strongly acid
Hue—10YR or 7.5YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 to 4 moist, 3 to 5 dry
Chroma—2 or 3 moist and 2 to 4 dry
Texture—very gravelly medial loam
Content of clay—12 to 20 percent
Content of rock fragments—35 to 50 percent gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones
Content of pararock fragments—10 to 25 percent paragravel and 0 to 5 percent paracobbles

AB horizon:
Value—3 to 5 moist and 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—extremely gravelly medial loam, very gravelly medial loam, or very cobbly medial loam
Content of clay—15 to 25 percent
Content of rock fragments—35 to 50 percent gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones
Content of pararock fragments—10 to 25 percent paragravel and 0 to 5 percent paracobbles

Bw horizon:
Value—4 to 6 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—extremely cobbly loam, very cobbly clay loam, or extremely gravelly loam
Content of clay—15 to 30 percent
Content of rock fragments—30 to 50 percent gravel, 20 to 40 percent cobbles, and 0 to 5 percent stones
Content of pararock fragments—20 to 30 percent paragravel and 5 to 10 percent paracobbles

C horizon:
Value—5 or 6 moist, 6 to 8 dry
Chroma—4 to 6 moist or dry

Texture—very paragravelly clay loam, very paragravelly loam, or extremely paragravelly clay loam
Content of clay—15 to 30 percent
Content of rock fragments—0 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—35 to 60 percent paragravel and 0 to 20 percent paracobbles
Reaction—very strongly acid to moderately acid

Chismore Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
General landscape: High stream terraces and fans
Parent material: Old clayey alluvium derived from volcanic and sedimentary rock
Slope: 0 to 12 percent
Elevation: 500 to 1,000 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine, isotic, mesic Aquic Palehumults

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
A1—1 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, dark brown (10YR 4/3) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine irregular pores; common medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; very strongly acid (pH 4.6); clear smooth boundary.
A2—9 to 17 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; common medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; very strongly acid (pH 4.6); clear smooth boundary.
BA—17 to 22 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; common medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; very strongly acid (pH 4.8); clear wavy boundary.
Bt1—22 to 30 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; common distinct clay films on faces of peds and on surfaces along pores; common medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; common black (10YR 2/1) manganese stains on vertical faces of peds; very strongly acid (pH 5.0); gradual wavy boundary.
Bt2—30 to 43 inches; yellowish brown (10YR 5/6) silty clay, brownish yellow (10YR 6/6) dry; moderate medium subangular blocky structure; hard, firm, moderately

sticky and moderately plastic; few fine, medium, and coarse roots; common very fine and fine tubular pores; common distinct clay films on faces of peds and many distinct clay films on surfaces along pores; common fine distinct dark gray and grayish brown (10YR 4/1 and 5/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; very strongly acid (pH 5.0); gradual wavy boundary.

BC—43 to 66 inches; yellowish brown (10YR 5/8) silty clay, brownish yellow (10YR 6/8) dry; weak medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium and coarse roots; few fine tubular pores; common medium distinct light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid (pH 5.0).

Typical Pedon Location

Map unit in which located: Chismore silt loam in an area of Chismore-Pyburn complex, 3 to 12 percent slopes

Location in survey area: In an area of woodland about 150 feet south and 800 feet east of the northwest corner of sec. 6, T. 15 S., R. 6 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 45 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Reaction—very strongly acid or strongly acid
Depth to redoximorphic features—20 to 30 inches; depletions that have chroma of 2 or less within the upper 10 inches of the argillic horizon and concentrations that have higher chroma
Hue—10YR

A horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—18 to 27 percent
Consistence in upper 6 to 8 inches—weakly smeary or moderately smeary

BA horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist, 3 or 4 dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent

Bt horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—3 to 6 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent

BC horizon:
Value—4 to 6 moist, 5 to 7 dry
Chroma—4 to 8 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent

Cloquato Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Flood plains
Parent material: Silty alluvium over sandy alluvium
Slope: 0 to 3 percent
Elevation: 30 to 800 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Cumulic Ultic Haploxerolls

Typical Pedon

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; moderately acid; abrupt smooth boundary.

A1—7 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; moderate medium and coarse granular structure; slightly hard, very friable; many fine roots; many fine and medium pores; slightly acid; clear smooth boundary.

A2—12 to 40 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; slightly hard, very friable; common fine roots; many fine and medium pores; neutral; abrupt smooth boundary.

2C1—40 to 52 inches; dark grayish brown (10YR 4/2), stratified sandy loam to silt loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; soft, very friable; few fine roots; many fine and medium tubular pores; neutral; abrupt smooth boundary.

3C2—52 to 72 inches; light brownish gray (2.5Y 6/2), stratified sand to fine sandy loam, dark grayish brown (2.5Y 4/2) dry; single grain; loose; few fine roots; neutral.

Typical Pedon Location

Map unit in which located: Cloquato silt loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 1,500 feet west of the northeast corner of sec. 31, T. 5 N., R. 1 E.

Range in Characteristics

Particle-size control section:
Content of clay—5 to 18 percent

Profile:
Thickness of mollic epipedon—20 inches or more
Depth to bedrock—more than 60 inches
Hue—10YR or 2.5Y

Ap and A horizons:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—5 to 20 percent
Reaction—moderately acid to neutral

C horizon:
Value—3 to 6 moist or dry
Chroma—2 to 4 moist or dry
Texture—stratified silt loam to sand
Content of clay—2 to 10 percent
Reaction—slightly acid to neutral
Content of rock fragments—0 to 10 percent gravel

Coburg Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
General landscape: Terraces and flood plains
Parent material: Clayey and loamy alluvium
Slope: 0 to 3 percent
Elevation: 150 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Oxyaquic Argixerolls

Typical Pedon

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure and moderate medium granular; hard, friable, moderately sticky and moderately plastic; many very fine roots; common very fine and few fine and medium tubular pores; moderately acid (pH 5.6); abrupt smooth boundary.

AB—7 to 18 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure and moderate medium granular; hard, friable, moderately sticky and moderately plastic; many very fine roots; common very fine and few fine and medium tubular pores; moderately acid (pH 5.6); abrupt smooth boundary.

Bt1—18 to 28 inches; dark brown (10YR 3/3) silty clay, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure and moderate fine subangular blocky; very hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular pores; common distinct very dark grayish brown (10YR 3/2) clay films on faces of peds and in pores; few black concretions 1 to 3 millimeters in size; slightly acid (pH 6.2); clear wavy boundary.

Bt2—28 to 41 inches; dark brown (10YR 3/3) silty clay loam, dark brown (10YR 4/3) dry; moderate medium and fine subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular pores; many prominent very dark grayish brown (10YR 3/2) clay films in pores and few distinct clay films on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; few small black manganese films on peds; slightly acid (pH 6.3); clear wavy boundary.

Bt3—41 to 53 inches; dark brown (10YR 3/3) silty clay, dark brown (10YR 4/3) dry; weak medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular pores; many prominent very dark grayish brown (10YR 3/2) clay films in pores; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation;

few small black manganese films on peds; neutral (pH 6.6); clear wavy boundary.

2C—53 to 65 inches; dark brown (10YR 4/3) fine sandy loam, pale brown (10YR 6/3) dry; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; many very fine and common fine pores; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; neutral (pH 6.8).

Typical Pedon Location

Map unit in which located: Coburg silty clay loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 1,200 feet west and 100 feet south of the northeast corner of sec. 19, T. 16 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 45 percent
Content of rock fragments—0 to 5 percent

Profile:
Thickness of mollic epipedon—20 to 30 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—30 to 40 inches to masses of iron accumulation, iron depletions in some areas
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

AB and BA horizon, where present:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

Bt horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent gravel

2C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—fine sandy loam, clay loam, loam, or sandy clay loam
Content of clay—15 to 30 percent
Reaction—slightly acid or neutral
Content of rock fragments—0 to 10 percent gravel

Concord Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
General landscape: Terraces
Parent material: Silty and clayey glaciolacustrine deposits
Slope: 0 to 2 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Typic Endoaqualfs

Typical Pedon

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure parting to moderate fine granular; hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine irregular pores and wormholes; common fine brown concretions; moderately acid (pH 6.0); abrupt smooth boundary.

E1—6 to 9 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine and few fine tubular pores; common fine and medium very dark brown concretions; common fine prominent dark brown (7.5YR 4/4) masses of iron accumulation; moderately acid (pH 5.8); clear smooth boundary.

E2—9 to 15 inches; dark gray (10YR 4/1) silt loam, light gray (10YR 7/1) dry; weak medium prismatic structure parting to moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine and common fine tubular pores; common fine very dark brown concretions; common fine prominent dark brown (7.5YR 4/4) masses of iron accumulation; moderately acid (pH 6.0); clear smooth boundary.

2ABg—15 to 19 inches; gray and dark gray (10YR 5/1 and 4/1) silty clay, light gray (10YR 7/1 and 6/1) dry; darker color in interior of peds; weak medium prismatic structure parting to moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine tubular pores; common medium tubular pores; many fine very dark brown concretions; common fine prominent dark brown (7.5YR 4/4) masses of iron accumulation; slightly acid (pH 6.2); clear smooth boundary.

2Btg—19 to 24 inches; grayish brown (2.5Y 5/2) silty clay, light brownish gray (2.5Y 6/2) dry; moderate fine prismatic structure parting to moderate medium and fine angular blocky; extremely hard, firm, very sticky and very plastic; few roots; many very fine and few fine and medium tubular pores; few faint and distinct clay films on surface of peds and in pores; many fine very dark brown and few fine black concretions; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; slightly acid (pH 6.4); clear wavy boundary.

2BCtg—24 to 29 inches; dark grayish brown (2.5Y 4/2) silty clay, light brownish gray (2.5Y 6/2) dry; weak coarse prismatic structure; very hard, firm, moderately sticky and moderately plastic; few fine roots; common fine pores; common distinct clay films along horizontal lines of weakness and few clay films in pores; few fine dark brown and black concretions; many fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral (pH 6.6); gradual smooth boundary.

3C—29 to 60 inches; dark grayish brown (2.5Y 4/2) silt loam, light gray (2.5Y 7/2) dry;

massive; hard, friable, moderately sticky and moderately plastic; common very fine tubular pores; many medium prominent dark yellowish brown (10YR 4/4) masses of iron accumulation; few black stains; neutral (pH 6.6).

Typical Pedon Location

Map unit in which located: Concord silt loam, 0 to 2 percent slopes
Location in survey area: In an area of pasture about 1,500 feet east and 300 feet south of the northwest corner of sec. 33, T. 5 S., R. 2 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 50 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—0 to 10 inches to iron depletions with masses of iron accumulations in some areas

A horizon:
Hue—2.5Y or 10YR
Value—3 to 5 moist, 6 or 7 dry
Chroma—1 or 2 moist or dry
Texture—silt loam
Content of clay—15 to 25 percent
Reaction—very strongly acid to moderately acid

E horizon:
Hue—5Y, 2.5Y, or 10YR
Value—4 to 6 moist, 6 or 7 dry
Chroma—1 or 2 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 30 percent
Reaction—strongly acid or moderately acid

2ABg horizon:
Hue—2.5Y or 10YR
Value—4 or 5 moist, 6 or 7 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—strongly acid to slightly acid

2Btg horizon:
Hue—neutral or 5Y, 2.5Y, or 10YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—0 to 2 moist or dry
Texture—silty clay or clay
Content of clay—40 to 50 percent
Reaction—strongly acid to slightly acid

2BCtg horizon:
Hue—5Y, 2.5Y, or 10YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—0 to 2 moist or dry
Texture—silty clay or clay
Content of clay—40 to 50 percent
Reaction—moderately acid to neutral

3C horizon:
Hue—2.5Y or 10YR
Value—4 or 5 moist, 6 or 7 dry
Chroma—1 to 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—15 to 30 percent
Reaction—slightly acid or neutral

Conser Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
General landscape: Terraces
Parent material: Silty and clayey alluvium derived from igneous and sedimentary rock
Slope: 0 to 3 percent
Elevation: 150 to 600 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Vertic Argiaquolls

Typical Pedon

A—0 to 9 inches; very dark brown (10YR 2/2) silty clay loam, grayish brown (10YR 5/2) dry; strong fine granular structure; hard, friable, moderately sticky and moderately plastic; many very fine and few fine roots; many fine irregular pores; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid (pH 6.2); clear smooth boundary.

BAg—9 to 14 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; weak medium prismatic structure and moderate medium subangular blocky; hard, firm, very sticky and very plastic; common very fine and fine roots; many very fine and few fine and medium tubular pores; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid (pH 6.2); clear smooth boundary.

Btg—14 to 27 inches; very dark gray (10YR 3/1) clay, grayish brown (10YR 5/2) dry; weak medium prismatic structure and moderate medium and fine subangular blocky; very hard, firm, very sticky and very plastic; common very fine and fine roots; many very fine and few fine and medium tubular pores; common distinct clay films along pores and on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid (pH 6.4); clear smooth boundary.

BCtg—27 to 41 inches; mottled, brown (10YR 4/3), grayish brown (10YR 4/2), and strong brown (7.5YR 5/6) silty clay, pale brown (10YR 6/3) and light brownish gray (10YR 6/2) dry; weak coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine roots; many very fine and common fine tubular pores; many distinct very dark gray (10YR 3/1) clay films along pores; slightly acid (pH 6.4); clear wavy boundary.

2Cg1—41 to 49 inches; dark grayish brown (10YR 4/2), stratified sandy loam to silty clay loam, light brownish gray (10YR 6/2) dry; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine pores; faint very dark gray (10YR 3/1) clay films along some pores; many medium

prominent strong brown (7.5YR 4/6) masses of iron accumulation; slightly acid (pH 6.4); clear wavy boundary.

2Cg2—49 to 60 inches; dark grayish brown (10YR 4/2), stratified sandy loam to silty clay loam, grayish brown (10YR 5/2) dry; massive; slightly hard, very friable, nonsticky and nonplastic; many medium prominent strong brown (7.5YR 4/5) masses of iron accumulation; neutral (pH 6.8).

Typical Pedon Location

Map unit in which located: Conser silty clay loam, 0 to 3 percent slopes

Location in survey area: In an area of native pasture about 2,000 feet east and 2,000 feet south of the northwest corner of sec. 3, T. 17 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 60 percent
Content of rock fragments—0 to 10 percent

Profile:
Thickness of mollic epipedon—24 to 34 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—0 to 10 inches to iron depletions, masses of iron accumulation in some areas
Content of rock fragments—0 to 10 percent

A horizon:
Hue—10YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 inches
Reaction—moderately acid or slightly acid

BA horizon:
Hue—10YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Reaction—moderately acid or slightly acid

Bt and BCt horizons:
Hue—10YR or 2.5Y
Value—3 to 5 moist, 4 to 6 dry
Chroma—1 to 3 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 60 percent
Reaction—moderately acid or slightly acid

C horizon:
Hue—10YR or 2.5Y
Value—4 or 5 moist, 5 or 6 dry
Chroma—1 to 4 moist or dry
Texture—stratified sandy loam to silty clay loam
Content of clay—15 to 30 percent
Reaction—slightly acid or neutral

Dayton Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
General landscape: Terraces
Parent material: Silty and clayey glaciolacustrine deposits
Slope: 0 to 2 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Vertic Albaqualfs

Typical Pedon

Ap—0 to 9 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine irregular pores; many very fine roots; strongly acid (pH 5.1); abrupt smooth boundary.

E1—9 to 12 inches; dark gray (10YR 4/1) silt loam, light gray (10YR 6/1) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many fine irregular pores; common fine black and dark reddish brown redoximorphic masses or fine concretions; strongly acid (pH 5.1); clear smooth boundary.

E2—12 to 15 inches; dark gray (5Y 4/1) silt loam, light gray (10YR 6/1) dry; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many very fine tubular pores; common very fine roots; common fine black and dark reddish brown redoximorphic masses or fine concretions; strongly acid (pH 5.4); abrupt smooth boundary.

2Bt1—15 to 22 inches; dark gray (5Y 4/1) silty clay, light brownish gray (10YR 6/2) and light gray (10YR 6/1) dry; moderate coarse prismatic structure; very hard, very firm, very sticky and very plastic; many fine tubular pores; common very fine roots; few medium black redoximorphic masses and gray coatings on faces of peds; strongly acid (pH 5.2); clear smooth boundary.

2Bt2—22 to 29 inches; olive gray (5Y 5/2) silty clay, light olive gray (5Y 6/2) dry; moderate medium and coarse prismatic structure; very hard, very firm, very sticky and very plastic; many very fine tubular pores; clay films not discernible; common black and dark reddish brown redoximorphic masses or fine concretions; moderately acid (pH 5.7); clear smooth boundary.

2BCt1—29 to 40 inches; gray (5Y 5/1) silty clay, light gray (5Y 7/2) dry; moderate medium prismatic structure; hard, firm, very sticky and very plastic; many fine tubular pores; many prominent clay films on faces of peds and along pores; few prominent yellowish brown (10YR 5/8) masses of iron accumulation; neutral (pH 6.8); gradual wavy boundary.

2BCt2—40 to 53 inches; dark gray (5Y 4/1) silt loam, light olive gray (5Y 6/2) dry; massive; hard, firm, moderately sticky and moderately plastic; few coarse tubular pores; many faint clay films on fractures and prominent clay films along pores; common prominent dark brown (10YR 4/3) masses of iron accumulation; neutral (pH 6.8); gradual wavy boundary.

3C1—53 to 64 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/4) dry; massive; slightly hard, friable, moderately sticky and moderately plastic; common fine faint brown (10YR 4/3) masses of iron accumulation; neutral (pH 7.0); gradual wavy boundary.

3C2—64 to 76 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/4) dry;

massive; slightly hard, friable, moderately sticky and moderately plastic; neutral (pH 7.2).

Typical Pedon Location

Map unit in which located: Dayton silt loam, 0 to 2 percent slopes (fig. 89)
Location in survey area: In a cultivated area about 1,500 feet north and 1,300 feet west of the southeast corner of sec. 19, T. 12 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 50 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to abrupt textural change—12 to 24 inches
Depth to redoximorphic features—0 to 10 inches to iron depletions, masses of iron accumulation in some areas

Figure 89.—Typical profile of Dayton silt loam, 0 to 2 percent slopes. The clay layer is between 12 and 24 inches.

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5 moist, 6 or 7 dry
Chroma—1 or 2 moist or dry
Texture—silt loam
Content of clay—15 to 25 percent
Reaction—very strongly acid to moderately acid
Content of rock fragments—0 to 3 percent gravel

E horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6 moist, 6 or 7 dry
Chroma—1 or 2 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 30 percent
Reaction—strongly acid or moderately acid

2Bt horizon:
Hue—neutral or 5Y, 2.5Y, or 10YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—0 to 2 moist or dry
Texture—clay or silty clay
Content of clay—40 to 50 percent
Reaction—strongly acid to slightly acid

2BCt horizon:
Hue—5Y, 2.5Y, or 10YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—0 to 2 moist or dry
Texture—silty clay or clay in upper part and silt loam or silty clay loam in lower part
Content of clay—40 to 50 percent in upper part and 20 to 35 percent in lower part
Reaction—moderately acid to neutral

3C horizon:
Hue—10YR or 2.5Y
Value—4 or 5 moist, 6 or 7 dry
Chroma—1 to 4 moist or dry
Texture—silt loam, silty clay loam, or silty clay
Content of clay—15 to 50 percent
Reaction—slightly acid or neutral
Content of rock fragments—0 to 15 percent gravel

Digger Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 90 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Loamy-skeletal, isotic, mesic Dystric Eutrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 4 inches; very dark grayish brown (10YR 3/2) very gravelly loam, grayish brown (10YR 5/2) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine, common medium, and few coarse roots; many fine tubular pores; 40 percent gravel and 5 percent cobbles; 9 percent paragravel and 1 percent paracobbles; moderately acid (pH 5.9); clear smooth boundary.

BA—4 to 16 inches; brown (10YR 4/3) very cobbly loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine, common medium, and few coarse roots; many fine tubular pores; 25 percent gravel and 25 percent cobbles; 13 percent paragravel and 2 percent paracobbles; moderately acid (pH 5.6); clear wavy boundary.

Bw1—16 to 30 inches; yellowish brown (10YR 5/4) very gravelly loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common fine tubular pores; 40 percent gravel and 15 percent cobbles; 20 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.5); gradual wavy boundary.

Bw2—30 to 38 inches; yellowish brown (10YR 5/4) extremely cobbly loam, very pale brown (10YR 7/4) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common fine tubular pores; 40 percent gravel and 35 percent cobbles; 8 percent paragravel and 2 percent paracobbles; strongly acid (pH 5.4); abrupt wavy boundary.

Cr—38 to 48 inches; moderately cemented sandstone; fractures 4 inches to less than 18 inches apart; few very fine and fine roots in cracks; minor amount of soil material from Bw2 horizon in fractures; gradual wavy boundary.

R—48 inches; very strongly cemented sandstone; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Digger very gravelly loam in an area of Digger-Umpcoos-Remote complex, 60 to 90 percent slopes (fig. 90)

Location in survey area: In an area of woodland about 330 feet south and 1,320 feet east of northwest corner of sec. 8, T. 14 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 25 percent
Content of rock fragments—35 to 60 percent
Content of pararock fragments—0 to 25 percent
Content of sand—more than 15 percent sand that is coarser than very fine sand

Profile:
Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact; 30 to 50 inches to a very strongly cemented lithic contact
Reaction—strongly acid or moderately acid
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 5 or 6 dry
Chroma—2 or 3 moist or dry

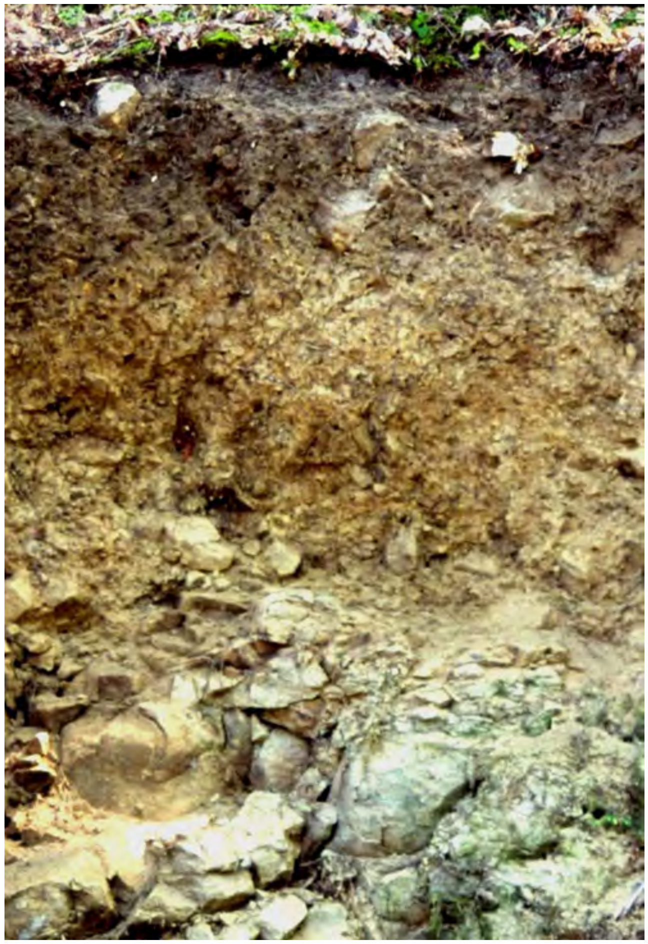


Figure 90.—Typical profile of Digger very gravelly loam in an area of Digger-Umpcoos-Remote complex, 60 to 90 percent slopes.

Texture—very gravelly loam
Content of clay—15 to 25 percent
Content of rock fragments—30 to 50 percent gravel and 0 to 10 percent cobbles
Content of pararock fragments—0 to 15 percent paragravel and 0 to 5 percent paracobbles

BA horizon, where present:
Value—4 moist, 5 to 7 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—very cobbly loam, very gravelly loam, or extremely gravelly loam
Content of clay—15 to 25 percent
Content of rock fragments—20 to 50 percent gravel and 15 to 40 percent cobbles
Content of pararock fragments—0 to 25 percent paragravel and 0 to 5 percent paracobbles

Bw horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—very gravelly loam, extremely gravelly loam, or extremely cobbly loam
Content of clay—15 to 27 percent
Content of rock fragments—20 to 50 percent gravel and 15 to 40 percent cobbles

Content of pararock fragments—0 to 25 percent paragravel and 0 to 5 percent paracobbles

Dixonville Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
General landscape: Hills
Parent material: Clayey colluvium and residuum derived from basalt
Slope: 3 to 60 percent
Elevation: 300 to 1,500 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical Pedon

A1—0 to 4 inches; very dark brown (10YR 2/2) silty clay loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine irregular pores; moderately acid (pH 5.8); clear smooth boundary.
A2—4 to 12 inches; very dark brown (10YR 2/2) silty clay, brown (10YR 4/3) dry; moderate medium and fine subangular blocky structure; hard, firm, very sticky and very plastic; many very fine roots; common very fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.
Bt1—12 to 21 inches; dark reddish brown (5YR 3/2) clay, reddish brown (5YR 4/3) dry; moderate medium and fine subangular blocky structure; very hard, very firm, very sticky and very plastic; many very fine roots; common very fine tubular pores; many faint clay films on faces of peds and along pores; slightly acid (pH 6.1); gradual smooth boundary.
Bt2—21 to 34 inches; dark reddish brown (5YR 3/3) clay, reddish brown (5YR 4/4) dry; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; many distinct clay films on faces of peds and along pores; slightly acid (pH 6.2); clear wavy boundary.
Cr—34 to 44 inches; moderately cemented basalt.

Typical Pedon Location

Map unit in which located: Dixonville silty clay loam in an area of Dixonville-Gellatly complex, 12 to 30 percent slopes (fig. 91)
Location in survey area: In an area of pasture about 1,800 feet west and 500 feet south of the northeast corner of sec. 4, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 55 percent
Content of rock fragments—0 to 35 percent
Content of pararock fragments—0 to 10 percent

Profile:
Thickness of mollic epipedon—20 to 36 inches
Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact
Hue—10YR, 7.5YR, or 5YR

Figure 91.—Typical profile of Dixonville silty clay loam in an area of Dixonville-Gellatly complex, 12 to 30 percent slopes.

A1 horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 10 percent gravel and 0 to 10 percent cobbles

A2 horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam or silty clay
Content of clay—30 to 50 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 10 percent gravel and 0 to 15 percent cobbles

Bt horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 to 4 moist or dry
Texture—clay, silty clay, gravelly silty clay, cobbly silty clay, or cobbly clay
Content of clay—40 to 55 percent

Reaction—moderately acid to neutral
Content of rock fragments—0 to 15 percent gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones
Content of pararock fragments—0 to 10 percent paragravel

Dupee Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 2 to 20 percent
Elevation: 170 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Aquultic Haploxeralfs

Typical Pedon

A1—0 to 4 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; strong fine granular and subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many fine irregular pores; moderately acid (pH 5.8); clear wavy boundary.

A2—4 to 9 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots, many fine and medium irregular pores; moderately acid (pH 5.8); clear wavy boundary.

AB—9 to 17 inches; dark yellowish brown (10YR 3/4) silty clay loam, pale brown (10YR 6/3) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; many very fine irregular pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid (pH 5.0); clear wavy boundary.

BA—17 to 24 inches; dark yellowish brown (10YR 3/4) silty clay loam, pale brown (10YR 6/3) dry; weak medium prismatic structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; many fine irregular pores; few silt coatings that are light gray (10YR 7/2) when dry and are on faces of peds; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation; very strongly acid (pH 5.0); clear wavy boundary.

Bt1—24 to 34 inches; brown (10YR 4/3) silty clay, pale brown (10YR 6/3) dry; weak medium prismatic structure parting to moderate fine and medium subangular blocky; very hard, very firm, very sticky and very plastic; common fine roots; common very fine irregular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; common silt coatings that are light gray (10YR 7/2) when dry and are on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid (pH 4.8); clear wavy boundary.

Bt2—34 to 42 inches; dark yellowish brown (10YR 4/4) silty clay, pale brown (10YR 6/3) dry; moderate fine and medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine irregular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; common silt coatings that are light gray (10YR 7/2) when dry and are on faces of peds; common fine distinct dark grayish brown (10YR 4/2) iron

depletions; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; common fine prominent black (10YR 2/1) manganese films; very strongly acid (pH 4.8); clear wavy boundary.

BCt—42 to 51 inches; dark grayish brown (10YR 4/2) silty clay, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; common light gray (10YR 5/8) masses of iron accumulation; few fine prominent black (10YR 2/1) manganese films; very strongly acid (pH 4.8); clear wavy boundary.

Cg—51 to 62 inches; grayish brown (10YR 5/2), gray (10YR 5/1), and yellowish brown (10YR 5/6) clay; massive; very hard, very firm, very sticky and very plastic; few very fine pores; 2 percent moderately cemented paragravel; very strongly acid (pH 4.8).

Typical Pedon Location

Map unit in which located: Dupee silt loam, 3 to 12 percent slopes

Location in survey area: In a cultivated area about 2,600 feet east and 2,100 feet south of the northwest corner of sec. 21, T. 7 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—0 to 50 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—10 to 30 inches to iron depletions, masses of iron accumulation in some areas

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—silt loam
Content of clay—15 to 27 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 5 percent paragravel

AB or BA horizons:
Hue—10YR or 7.5YR
Value—3 to 5 moist, 5 or 6 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—silt loam, clay loam, or silty clay loam
Content of clay—25 to 40 percent
Reaction—very strongly acid or strongly acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 5 percent paragravel

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 or 4 moist, 3 to 6 dry
Texture—clay, silty clay, silty clay loam, very paragravelly clay loam, or paragravelly silty clay

Content of clay—35 to 50 percent
Reaction—very strongly acid or strongly acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 50 percent paragravel

BCt or Cg horizons:
Hue—2.5Y, 10YR, or 7.5YR
Value—4 to 7 moist, 5 to 7 dry
Chroma—1 to 6 moist or dry
Texture—silty clay, clay, paragravelly silty clay loam, or very paragravelly clay loam
Content of clay—30 to 50 percent
Reaction—very strongly acid or strongly acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 50 percent paragravel

Eilertsen Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Low stream terraces
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope: 0 to 7 percent
Elevation: 300 to 800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-silty, isotic, mesic Ultic Hapludalfs

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A1—1 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate very fine and fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine and few medium and coarse roots; many very fine irregular pores; very strongly acid (pH 5.0); clear smooth boundary.

A2—9 to 18 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and few medium and coarse roots; many very fine tubular pores; very strongly acid (pH 5.0); clear smooth boundary.

Bt1—18 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine and few medium and coarse roots; many very fine tubular pores; few distinct very dark grayish brown (10YR 3/2) clay films on faces of peds and common distinct very dark grayish brown (10YR 3/2) clay films on surfaces along pores; very strongly acid (pH 4.8); clear smooth boundary.

Bt2—29 to 45 inches; yellowish brown (10YR 5/4) silty clay loam, very pale brown (10YR 7/4) dry; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; many very fine tubular pores; common distinct very dark grayish

brown (10YR 3/2) clay films on faces of peds and on surfaces along pores; very strongly acid (pH 4.6); gradual smooth boundary.

2BC—45 to 54 inches; yellowish brown (10YR 5/4) loam, light yellowish brown (10YR 6/4) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine, medium, and coarse roots; common very fine tubular pores; common medium distinct yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid (pH 4.5); gradual smooth boundary.

2C—54 to 72 inches; yellowish brown (10YR 5/4) loam, light yellowish brown (10YR 6/4) dry; massive; slightly hard, friable, slightly sticky and nonplastic; few coarse roots; few very fine tubular pores; common fine distinct light gray (10YR 7/2) iron depletions and many medium distinct yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid (pH 4.5).

Typical Pedon Location

Map unit in which located: Eilertsen silt loam in an area of Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes

Location in survey area: In an area of woodland about 1,650 feet south and 1,100 feet west of the northeast corner of sec. 24, T. 14 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 35 percent
Content of sand—less than 15 percent, by weight, fine sand or coarser

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—iron depletions that have chroma of 2 or less and masses of iron accumulation that have chroma of more than 2 below a depth of 40 inches
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—12 to 20 percent
Reaction—very strongly acid to slightly acid

Bt horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 to 6 moist or dry
Texture—silt loam, silty clay loam, or loam
Content of clay—18 to 35 percent
Reaction—very strongly acid or strongly acid

2BC and 2C horizons:
Value—4 or 5 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—fine sandy loam, loam, or silt loam
Content of clay—10 to 25 percent
Reaction—extremely acid to strongly acid

Elsie Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Intermediate stream terraces
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope: 0 to 15 percent
Elevation: 400 to 800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-silty, isotic, mesic Typic Haplohumults

Typical Pedon

Ap—0 to 8 inches; very dark brown (10YR 2/2) silt loam, very dark grayish brown (10YR 3/2) dry; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; strongly acid (pH 5.4); clear smooth boundary.

A1—8 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; strongly acid (pH 5.2); clear smooth boundary.

A2—15 to 22 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; very strongly acid (pH 5.0); clear wavy boundary.

Bt1—22 to 35 inches; dark yellowish brown (10YR 3/4) silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and fine tubular pores; few faint clay films on faces of peds and common faint clay films on surfaces along pores; very strongly acid (pH 4.6); gradual smooth boundary.

Bt2—35 to 53 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and fine tubular pores; 10 percent paragravel; few faint clay films on faces of peds and common faint clay films on surfaces along pores; extremely acid (pH 4.4); gradual smooth boundary.

BC—53 to 67 inches; yellowish brown (10YR 5/4) loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; many very fine and fine tubular pores; 10 percent paragravel; extremely acid (pH 4.2).

Typical Pedon Location

Map unit in which located: Elsie silt loam, 0 to 7 percent slopes
Location in survey area: In an area of improved pasture about 500 feet south and 1,200 feet east of the northwest corner of sec. 7, T. 15 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 35 percent

Content of sand—less than 15 percent, by weight, fine sand or coarser

Profile:
Thickness of umbric epipedon—20 to 30 inches
Depth to bedrock—more than 60 inches
Reaction—extremely acid to strongly acid
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—18 to 25 percent

Bt horizon:
Value—3 to 5 moist, 5 or 6 dry
Chroma—3 to 6 moist or dry
Texture—silt loam or silty clay loam
Content of clay—22 to 30 percent
Content of pararock fragments—0 to 10 percent paragravel

BC horizon:
Value—4 or 5 moist, 5 or 6 dry
Chroma—4 to 6 moist or dry
Texture—loam or silt loam
Content of clay—18 to 27 percent
Content of pararock fragments—0 to 10 percent paragravel

Fiverivers Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 60 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Fine-loamy, isotic, frigid Andic Dystrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt wavy boundary.

A—1 to 4 inches; dark brown (7.5YR 3/3) very gravelly medial loam, brown (7.5YR 4/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium roots; many very fine and fine irregular pores; 50 percent gravel and 2 percent cobbles; 10 percent paragravel and 1 percent paracobbles; strongly acid (pH 5.4); clear wavy boundary.

AB—4 to 9 inches; dark brown (7.5YR 3/4) very gravelly medial loam, brown (7.5YR 4/4) dry; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and common medium roots; many very fine and fine tubular pores; 35 percent gravel and

2 percent cobbles; 10 percent paragravel and 3 percent paracobbles; strongly acid (pH 5.4); clear wavy boundary.

Bw—9 to 15 inches; brown (7.5YR 4/4) gravelly loam, brown (7.5YR 4/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 20 percent gravel and 5 percent cobbles; 25 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.2); clear wavy boundary.

Bt1—15 to 25 inches; brown (7.5YR 4/4) extremely paragravelly clay loam, strong brown (7.5YR 4/6) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine tubular pores; few faint clay films on faces of peds and surface of pores and coating some rock fragments; common fine and medium dark reddish brown (5YR 3/4) iron-manganese concretions that are spherical in matrix and very weakly cemented; 8 percent gravel and 5 percent cobbles; 40 percent paragravel and 10 percent paracobbles; strongly acid (pH 5.2); gradual wavy boundary.

Bt2—25 to 36 inches; strong brown (7.5YR 4/6) extremely paragravelly clay loam, strong brown (7.5YR 5/6) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; few faint clay films on faces of peds and surface of pores and coating some rock fragments; common fine and medium dark reddish brown (5YR 3/4) iron-manganese concretions that are spherical in matrix and very weakly cemented; 8 percent gravel and 5 percent cobbles; 45 percent paragravel and 20 percent paracobbles; strongly acid (pH 5.3); abrupt wavy boundary.

Crt—36 inches; weakly cemented, highly weathered sandstone and siltstone; fractures 4 inches to less than 18 inches apart; more than 80 inches deep to indurated bedrock; common faint to distinct clay films coating some pararock fragments and common distinct clay films along fracture planes.

Typical Pedon Location

Map unit in which located: Fiverivers very gravelly medial loam in an area of Grassmountain-Fiverivers-Chintimini complex, 5 to 30 percent slopes

Location in survey area: In an area of woodland about 1,750 feet south and 1,980 feet west of the northeast corner of sec. 23, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:

Content of clay—20 to 30 percent (apparent, by field estimates)
Content of rock fragments—5 to 30 percent
Content of pararock fragments—35 to 60 percent

Profile:

Depth to bedrock—20 to 40 inches deep to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 10YR

A horizon:

Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist or dry
Texture—very gravelly medial loam
Content of clay—12 to 20 percent

Content of rock fragments—35 to 50 percent gravel, 0 to 5 percent cobbles, and 0 to 3 percent stones
Content of pararock fragments—5 to 15 percent paragravel and 0 to 5 percent paracobbles
Consistence—weakly smeary or moderately smeary

AB horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 or 5 moist, 4 to 6 dry
Texture—very gravelly medial loam or gravelly medial loam
Content of clay—18 to 25 percent
Content of rock fragments—20 to 40 percent gravel, 0 to 5 percent cobbles, and 0 to 3 percent stones
Content of pararock fragments—5 to 15 percent paragravel and 0 to 5 percent paracobbles

Bw or Bw1 horizon:
Value—4 or 5 moist, 4 to 7 dry
Chroma—4 to 6 moist or dry
Texture—gravelly loam, paragravelly loam, or paragravelly clay loam
Content of clay—20 to 30 percent
Content of rock fragments—15 to 25 percent gravel, 0 to 5 percent cobbles, and 0 to 3 percent stones
Content of pararock fragments—20 to 30 percent paragravel and 0 to 5 percent paracobbles

Bt or Bw2 horizon:
Value—4 or 5 moist, 4 to 7 dry
Chroma—4 to 6 moist or dry
Texture—extremely paragravelly clay loam, very paragravelly clay loam, or very paragravelly loam
Content of clay—20 to 30 percent
Content of rock fragments—5 to 10 percent gravel, 0 to 5 percent cobbles, and 0 to 3 percent stones
Content of pararock fragments—35 to 50 percent paragravel and 10 to 25 percent paracobbles

Fluvaquents

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate or moderately rapid
General landscape: Flood plains
Parent material: Recent loamy alluvium over stratified very gravelly loamy and sandy alluvium
Slope: 0 to 3 percent
Elevation: 120 to 750 feet
Mean annual precipitation: 40 to 100 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Mesic Fluvaquents

Typical Pedon

A1—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine granular structure; slightly hard, friable, slightly sticky

and slightly plastic; many very fine roots; many very fine irregular pores; strongly acid (pH 5.4); clear smooth boundary.

A2—8 to 24 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine irregular pores; many fine and medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid (pH 5.2); clear smooth boundary.

C—24 to 60 inches; grayish brown (10YR 5/2), stratified very gravelly sandy loam to silt loam, light brownish gray (10YR 6/2) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; common fine tubular pores; 3 percent gravel; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid (pH 5.2).

Typical Pedon Location

Map unit in which located: Fluvents-Fluvaquents complex, 0 to 3 percent slopes

Location in survey area: In an area of pasture about 1,300 feet west and 100 feet north of the southeast corner of sec. 31, T. 12 S., R. 4 W.

Range in Characteristics

Particle-size control section:

Content of clay—5 to 35 percent

Content of rock fragments—0 to 50 percent

Profile:

Depth to bedrock—more than 60 inches

Depth to redoximorphic features—concentrations within 10 inches of mineral soil surface, iron depletions that have chroma of 2 or less in some areas

A1 horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—2 to 4 moist, 5 or 6 dry

Chroma—1 or 2 moist or dry

Texture—silty clay loam, silt loam, loam, gravelly silt loam, gravelly clay loam, or gravelly silty clay loam

Content of clay—10 to 35 percent

Content of rock fragments—0 to 30 percent gravel

Reaction—strongly acid to slightly acid

A2 horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—2 to 4 moist, 5 or 6 dry

Chroma—1 or 2 moist or dry

Texture—silt loam, silty clay loam, gravelly clay loam, or gravelly loam

Content of clay—10 to 35 percent

Content of rock fragments—0 to 30 percent gravel

Reaction—strongly acid to slightly acid

C horizon:

Hue—neutral or 5Y, 2.5Y, or 10YR

Value—3 to 5 moist, 5 to 7 dry

Chroma—1 or 2 moist or dry

Texture—stratified gravelly silt loam to silt loam

Content of clay—5 to 27 percent

Content of rock fragments—0 to 50 percent gravel and 0 to 20 percent cobbles

Reaction—strongly acid to neutral

2C horizon, where present:
Hue—neutral or 5Y, 2.5Y, or 10YR
Value—3 to 5 moist, 5 to 7 dry
Chroma—1 or 2 moist or dry
Texture—stratified very gravelly loamy sand to silt loam
Content of clay—5 to 25 percent
Content of rock fragments—0 to 50 percent gravel and 0 to 20 percent cobbles
Reaction—strongly acid to neutral

Fluvents

Depth class: Very deep
Drainage class: Moderately well drained to excessively drained
Permeability: Moderate to very rapid
General landscape: Flood plains
Parent material: Recent loamy alluvium over stratified extremely gravelly sandy and loamy alluvium
Slope: 0 to 3 percent
Elevation: 120 to 550 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Mesic Fluvents

Typical Pedon

A1—0 to 9 inches; very dark brown (10YR 2/2) loam, very dark grayish brown (10YR 3/2) dry; strong medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; moderately acid (pH 5.6); gradual smooth boundary.

A2—9 to 27 inches; dark brown (10YR 3/3) loam, dark yellowish brown (10YR 3/4) dry; moderate medium and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; moderately acid (pH 5.6); gradual smooth boundary.

A3—27 to 35 inches; dark yellowish brown (10YR 3/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) dry; weak medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 20 percent gravel; moderately acid (pH 5.8); abrupt wavy boundary.

2C—35 to 60 inches; dark yellowish brown (10YR 3/4), stratified extremely gravelly sand to very gravelly loamy sand, dark yellowish brown (10YR 4/4) dry; single grain; loose, nonsticky and nonplastic; common very fine irregular pores; 50 percent gravel and 15 percent cobbles; slightly acid (pH 6.2).

Typical Pedon Location

Map unit in which located: Fluvents-Fluvaquents complex, 0 to 3 percent slopes
Location in survey area: In an area of pasture about 2,600 feet north and 300 feet west of the southeast corner of sec. 13, T. 9 S., R. 1 E.

Range in Characteristics

Particle-size control section:
Content of clay—2 to 20 percent
Content of rock fragments—15 to 75 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to 2C horizon—20 to 60 inches
Hue—10YR or 7.5YR
Depth to redoximorphic features—20 to 60 inches or more to iron depletions, masses of iron accumulation in some areas

A1 horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist or dry
Texture—silt loam, loam, sandy loam, or gravelly sandy loam
Content of clay—5 to 20 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 30 percent gravel

A2 and A3 horizons:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist or dry
Texture—loam, sandy loam, gravelly loam, or gravelly sandy loam
Content of clay—5 to 20 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 30 percent gravel

2C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—1 to 4 moist or dry
Texture—stratified extremely gravelly sand to very gravelly loamy sand
Content of clay—1 to 8 percent
Reaction—strongly acid to neutral
Content of rock fragments—25 to 70 percent gravel and 10 to 25 percent cobbles

Formader Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 3 to 80 percent
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Medial over loamy, ferrihydritic over isotic, mesic Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
A—1 to 15 inches; dark brown (7.5YR 3/3) gravelly medial loam, brown (7.5YR 4/3) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine tubular pores; common medium prominent dark reddish brown (5YR 3/2) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented;

20 percent gravel; 25 percent paragravel; very strongly acid (pH 5.0); clear smooth boundary.

2Bw—15 to 27 inches; brown (7.5YR 4/4) gravelly clay loam, brown (7.5YR 5/4) dry; moderate fine subangular blocky structure; hard, firm, sticky and plastic; weakly smeary; common very fine and fine and few medium and coarse roots; many very fine tubular pores; common medium prominent dark reddish brown (5YR 3/3) and reddish yellow (5YR 6/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 25 percent gravel; 30 percent paragravel; very strongly acid (pH 4.8); abrupt wavy boundary.

2Cr—27 inches; weakly cemented, highly weathered basalt; fractures 18 inches to less than 39 inches apart.

Typical Pedon Location

Map unit in which located: Formader gravelly medial loam in an area of Formader-Hemcross complex, 35 to 60 percent slopes

Location in survey area: In an area of woodland about 400 feet north and 2,100 feet east of the southwest corner of sec. 9, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent (apparent, by field estimates)
Content of rock fragments—15 to 30 percent
Content of pararock fragments—5 to 30 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Hue—10YR, 7.5YR, or 5YR moist, 10YR or 7.5YR dry
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—gravelly medial loam
Content of clay—15 to 20 percent
Content of rock fragments—15 to 20 percent gravel
Content of pararock fragments—5 to 30 percent

Bw horizon:
Hue—7.5YR or 5YR moist, 10YR or 7.5YR dry
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 to 4 moist or dry
Texture—gravelly clay loam or gravelly loam
Content of clay—18 to 30 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—5 to 30 percent

Gelderman Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills and mountains

Parent material: Clayey colluvium and residuum derived from basalt
Slope: 2 to 30 percent
Elevation: 250 to 2,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Fine, mixed, active, mesic Xeric Haplohumults

Typical Pedon

A1—0 to 5 inches; dark reddish brown (5YR 3/3) silty clay loam, reddish brown (5YR 4/4) dry; strong fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine, medium, and coarse roots; many very fine tubular pores; moderately acid (pH 5.7); clear smooth boundary.

A2—5 to 10 inches; dark reddish brown (5YR 3/3) silty clay loam, reddish brown (5YR 4/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine, medium, and coarse roots; many very fine tubular pores; strongly acid (pH 5.4); clear smooth boundary.

Bt1—10 to 24 inches; dark reddish brown (5YR 3/4) clay, reddish brown (5YR 4/4) dry; moderate coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine, fine, medium, and coarse roots; many very fine and fine and common medium tubular pores; common faint clay films on faces of peds and surface of pores; 5 percent gravel; 5 percent paragravel; strongly acid (pH 5.1); clear wavy boundary.

Bt2—24 to 30 inches; dark reddish brown (5YR 3/4) paragravelly clay, yellowish red (5YR 4/6) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; many very fine and fine and few medium tubular pores; many distinct clay films on faces of peds and surface of pores; 5 percent gravel; 25 percent paragravel; strongly acid (pH 5.1); abrupt wavy boundary.

Cr—30 inches; moderately cemented, highly weathered basalt.

Typical Pedon Location

Marion County, Oregon; in an area of urban land about 1,200 feet south and 800 feet west of the northeast corner of sec. 23, T. 8 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 50 percent
Content of rock fragments—0 to 10 percent
Content of pararock fragments—5 to 30 percent

Profile:
Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact
Base saturation—less than 35 percent throughout lower part of argillic horizon

A1 horizon:
Hue—5YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 10 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 10 percent paragravel

A2 horizon, and AB horizon, where present:
Hue—5YR or 7.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 or 4 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 45 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 10 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 10 percent paragravel

Bt horizon:
Hue—5YR or 2.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—silty clay, clay, paragravelly clay, or paragravelly silty clay
Content of clay—40 to 50 percent
Reaction—very strongly acid to moderately acid
Content of rock fragments—5 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—5 to 30 percent paragravel

Gellatly Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
General landscape: Hills
Parent material: Clayey colluvium and residuum derived from basalt
Slope: 3 to 60 percent
Elevation: 300 to 1,500 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Pachic Argixerolls

Typical Pedon

A—0 to 8 inches; very dark brown (10YR 2/2) silty clay loam, brown (10YR 4/3) dry; strong fine granular structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine and few fine, medium, and coarse roots; many very fine irregular pores; 2 percent gravel; slightly acid (pH 6.1); abrupt smooth boundary.

BAt—8 to 14 inches; very dark brown (10YR 2/2) silty clay loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure parting to moderate fine subangular blocky; moderately hard, friable, moderately sticky and very plastic; common very fine and few fine, medium, and coarse roots; many very fine, fine, and medium pores; few faint clay films on faces of peds and along pores; 2 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bt—14 to 29 inches; dark brown (7.5YR 3/2) clay, brown (7.5YR 4/2) dry; weak medium prismatic structure parting to moderate medium subangular blocky; very hard, friable, moderately sticky and very plastic; common very fine and few fine, medium, and coarse roots; many very fine and common fine and medium tubular pores; many distinct clay films on faces of peds and along pores; slightly acid (pH 6.3); clear wavy boundary.

BCt1—29 to 45 inches; dark yellowish brown (10YR 4/4 and 4/6) silty clay loam, yellowish brown (10YR 5/6), light yellowish brown (10YR 6/4), and brownish

yellow (10YR 6/6) dry; massive; moderately hard, friable, moderately sticky and slightly plastic; few very fine, fine, medium, and coarse roots; many very fine tubular pores; few prominent very dark grayish brown (10YR 3/2) clay films along pores; neutral (pH 6.9); gradual wavy boundary.

BCt2—45 to 61 inches; dark grayish brown (10YR 4/2) and light yellowish brown (10YR 6/4) silty clay loam, brownish yellow (10YR 6/6), light yellowish brown (10YR 6/4), and brown (10YR 5/3) dry; massive; moderately hard, friable, moderately sticky and slightly plastic; few very fine roots; many very fine tubular pores; few prominent very dark grayish brown (10YR 3/2) clay films along pores; 10 percent paragravel; neutral (pH 7.1); abrupt wavy boundary.

Cr—61 to 71 inches; moderately cemented basalt.

Typical Pedon Location

Map unit in which located: Gellatly silty clay loam (fig. 92) in an area of Dixonville-Gellatly complex, 12 to 30 percent slopes

Figure 92.—Typical profile of a Gellatly silty clay loam in an area of Dixonville-Gellatly-Witham complex, 2 to 12 percent slopes.

Location in survey area: In an area of homesites about 2,400 feet east and 2,200 feet south of the northwest corner of sec. 21, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 55 percent
Content of rock fragments—0 to 10 percent

Profile:
Thickness of mollic epipedon—20 to 36 inches
Depth to bedrock—60 to 98 inches to a moderately cemented paralithic contact

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel and 0 to 10 percent cobbles

BAt horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam, silty clay, cobbly silty clay loam, or cobbly silty clay
Content of clay—35 to 50 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel and 0 to 20 percent cobbles

Bt horizon:
Hue—10YR or 7.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—clay or silty clay
Content of clay—40 to 55 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel and 0 to 5 percent cobbles

BCt horizon:
Hue—10YR
Value—3 to 6 moist, 4 to 6 dry
Chroma—2 to 6 moist or dry
Texture—silty clay loam, paragravelly clay, silty clay, or clay
Content of clay—30 to 50 percent
Reaction—slightly acid or neutral
Content of pararock fragments—0 to 35 percent paragravel

Giveout Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock

Slope: 5 to 60 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Medial, ferrihydritic, frigid Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 16 inches; dark brown (7.5YR 3/3) gravelly medial loam, brown (7.5YR 5/3) dry; moderate very fine and fine granular structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium roots; many very fine and fine and few coarse irregular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 25 percent gravel and 3 percent cobbles; strongly acid (pH 5.5); clear smooth boundary.

Bw1—16 to 28 inches; brown (7.5YR 4/4) gravelly medial loam, brown (7.5YR 5/4) dry; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; common very fine, fine, and medium and few coarse roots; many very fine and fine and few medium and coarse tubular pores; common medium dark reddish brown (5YR 3/3) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 20 percent gravel and 2 percent cobbles; strongly acid (pH 5.1); clear smooth boundary.

Bw2—28 to 36 inches; strong brown (7.5YR 4/6) gravelly medial loam, strong brown (7.5YR 5/6) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine, medium, and coarse roots; common very fine and fine and few medium and coarse tubular pores; common medium dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 15 percent gravel and 1 percent cobbles; 15 percent paragravel; strongly acid (pH 5.2); abrupt wavy boundary.

Cr—36 inches; weakly cemented, highly weathered basalt; fractures 18 inches to less than 39 inches apart.

Typical Pedon Location

Map unit in which located: Giveout gravelly medial loam in an area of Caterl-Murtip-Giveout complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 750 feet south and 2,300 feet west of the northeast corner of sec. 18, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent (apparent, by field estimates)
Content of rock fragments—15 to 35 percent
Content of pararock fragments—0 to 20 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 10YR

Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—gravelly medial loam
Content of clay—12 to 20 percent
Content of rock fragments—15 to 25 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 5 percent paragravel

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—gravelly medial loam, medial clay loam, or paracobbly medial loam
Content of clay—18 to 30 percent
Content of rock fragments—5 to 25 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 20 percent paragravel and 0 to 20 percent paracobbles

Goodin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 2 to 20 percent
Elevation: 200 to 900 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Ultic Haploxeralfs

Typical Pedon

A1—0 to 3 inches; dark yellowish brown (10YR 3/4) silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; friable, slightly hard, moderately sticky and moderately plastic; many very fine roots, common fine roots, and few medium and coarse roots; many very fine irregular pores and common fine and medium and few coarse tubular pores; 1 percent siltstone paragravel; strongly acid (pH 5.1); clear smooth boundary.

A2—3 to 9 inches; dark yellowish brown (10YR 3/4) silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine and medium subangular blocky structure; friable, moderately hard, moderately sticky and moderately plastic; many very fine roots, common fine roots, and few medium and coarse roots; many very fine, common fine and medium, and few coarse tubular pores; 1 percent siltstone paragravel; strongly acid (pH 5.1); abrupt wavy boundary.

Bt1—9 to 16 inches; brown (7.5YR 4/4) silty clay, brown (7.5YR 5/4) dry; moderate medium and coarse subangular blocky structure; friable, hard, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine, fine, and medium tubular pores; many faint clay films on faces of peds and common faint clay films on surfaces along pores; 1 percent siltstone paragravel; strongly acid (pH 5.2); clear wavy boundary.

Bt2—16 to 21 inches; brown (7.5YR 4/4) silty clay, brown (7.5YR 5/4) dry; moderate medium and coarse subangular blocky structure; friable, hard, moderately sticky

and moderately plastic; common very fine and few fine and medium roots; common very fine, fine, and medium tubular pores; many distinct clay films on faces of peds and common distinct clay films on surfaces along pores; 3 percent siltstone paragravel; very strongly acid (pH 4.8); clear wavy boundary.

BCt—21 to 29 inches; strong brown (7.5YR 4/6) very paragravelly clay, strong brown (7.5YR 5/6) dry; weak coarse subangular blocky structure; friable, hard, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine and few fine and medium tubular pores; few distinct clay films on faces of peds, on surfaces along pores, and on pararock fragments; 35 percent siltstone paragravel; very strongly acid (pH 4.7); abrupt wavy boundary.

Cr—29 to 39 inches; moderately cemented siltstone.

Typical Pedon Location

Yamhill County, Oregon; in an area of Christmas trees about 2,600 feet west and 1,500 feet north of the southeast corner of sec. 17, T. 2 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of pararock fragments—0 to 5 percent

Profile:
Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact
Hue—10YR to 5YR

A1 horizon:
Hue—10YR to 5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—silty clay loam
Content of clay—27 to 30 percent
Reaction—moderately acid or strongly acid
Content of pararock fragments—0 to 5 percent paragravel

A2 horizon:
Hue—10YR to 5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—moderately acid or strongly acid
Content of pararock fragments—0 to 5 percent paragravel

Bt horizon:
Hue—10YR to 5YR
Value—4 moist, 5 or 6 dry
Chroma—3 to 6 moist, 4 to 6 dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Reaction—moderately acid to very strongly acid
Content of pararock fragments—0 to 5 percent paragravel

BCt horizon:
Hue—2.5Y, 10YR, 7.5YR, or 5YR
Value—4 or 5 moist, 4 to 7 dry
Chroma—4 to 6 moist or dry

Texture—very paragravelly clay, silty clay loam, paragravelly silty clay, clay, or paragravelly clay
Content of clay—30 to 50 percent
Reaction—strongly acid or very strongly acid
Content of pararock fragments—15 to 60 percent paragravel

Grassmountain Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 60 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Fine-loamy, isotic, frigid Andic Dystrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt wavy boundary.
A—1 to 7 inches; dark brown (7.5YR 3/3) gravelly medial loam, brown (7.5YR 4/3) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; 20 percent gravel and 2 percent cobbles; 5 percent paragravel; very strongly acid (pH 4.8); clear wavy boundary.
AB—7 to 15 inches; dark brown (7.5YR 3/4) paragravelly medial loam, brown (7.5YR 4/4) dry; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; weakly smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; 10 percent gravel; 15 percent paragravel and 5 percent paracobbles; very strongly acid (pH 5.0); clear smooth boundary.
Bw1—15 to 29 inches; strong brown (7.5YR 4/6) paragravelly loam, strong brown (7.5YR 5/6) dry; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; 10 percent gravel; 15 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.2); gradual smooth boundary.
Bw2—29 to 44 inches; strong brown (7.5YR 5/6) very paragravelly clay loam, reddish yellow (7.5YR 6/6) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores;
10 percent gravel; 20 percent paragravel and 10 percent paracobbles; strongly acid (pH 5.2); gradual smooth boundary.
BCt—44 to 69 inches; reddish yellow (7.5YR 6/6) extremely paragravelly clay loam, reddish yellow (7.5YR 7/6) dry; weak medium and coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; common very fine and fine tubular pores; few faint clay films on faces of peds and surface of pores and coating some rock fragments; 10 percent gravel; 40 percent paragravel and 15 percent paracobbles; strongly acid (pH 5.4); clear wavy boundary.
Crt—69 inches; weakly cemented, highly weathered sandstone and siltstone;

fractures 4 to less than 18 inches apart; few coarse roots in cracks; common distinct clay films coating some pararock fragments and along fracture planes.

Typical Pedon Location

Map unit in which located: Grassmountain gravelly medial loam in an area of Fiverivers-Grassmountain-Chintimini complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 2,000 feet north and 2,350 feet west of the southeast corner of sec. 19, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 30 percent (apparent, by field estimates)
Content of rock fragments—5 to 30 percent
Content of pararock fragments—20 to 50 percent

Profile:
Depth to bedrock—60 to 80 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 10YR

A horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist or dry
Texture—gravelly medial loam
Content of clay—12 to 20 percent
Content of rock fragments—15 to 20 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 5 percent paragravel and 0 to 5 percent paracobbles
Consistence—moderately smeary or weakly smeary

AB horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—paragravelly medial loam or gravelly medial loam
Content of clay—18 to 25 percent
Content of rock fragments—10 to 20 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—0 to 20 percent paragravel and 0 to 5 percent paracobbles
Consistence—weakly smeary

Bw horizon:
Value—4 or 5 moist, 4 to 7 dry
Chroma—4 to 6 moist or dry
Texture—paragravelly loam, very paragravelly clay loam, or very paracobbly silty clay loam
Content of clay—20 to 30 percent
Content of rock fragments—5 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—15 to 20 percent paragravel and 5 to 20 percent paracobbles

BCt horizon, or BC horizon, where present:
Value—5 or 6 moist, 6 to 8 dry
Chroma—4 to 6 moist or dry
Texture—extremely paragravelly clay loam, extremely paragravelly loam, or very paracobbly silty clay loam
Content of clay—20 to 30 percent

Content of rock fragments—5 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—25 to 50 percent paragravel and 10 to 25 percent paracobbles

Harslow Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 90 percent
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Medial-skeletal, ferrihydritic, mesic Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt wavy boundary.

A1—1 to 6 inches; very dark grayish brown (10YR 3/2) very gravelly medial loam, dark brown (10YR 4/3) dry; moderate very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine and few medium roots; many very fine and fine and common medium and coarse irregular pores; many medium dark reddish brown (5YR 3/3) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 50 percent gravel and 5 percent cobbles; strongly acid (pH 5.2); clear smooth boundary.

A2—6 to 11 inches; very dark grayish brown (10YR 3/2) very gravelly medial loam, brown (10YR 5/3) dry; moderate very fine and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine and few medium roots; many very fine and fine and common medium and coarse irregular pores; many medium dark reddish brown (5YR 3/3) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 50 percent gravel and 5 percent cobbles; strongly acid (pH 5.2); clear wavy boundary.

AB—11 to 17 inches; dark brown (10YR 3/3) very gravelly medial loam, brown (10YR 5/3) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; common very fine and fine and few medium roots; many very fine, fine, and medium and few coarse tubular pores; many medium dark reddish brown (5YR 3/3), reddish brown (5YR 4/4), and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 50 percent gravel and 5 percent cobbles; strongly acid (pH 5.0); clear wavy boundary.

Bw—17 to 26 inches; dark brown (10YR 4/3) extremely cobbly medial loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; weakly smeary; common very fine and fine and few medium roots; common very fine, fine, and medium and few coarse tubular pores; common medium dark reddish brown (5YR 3/4), reddish yellow (5YR 6/8), and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 35 percent gravel and 30 percent cobbles; strongly acid (pH 5.0); gradual wavy boundary.

BC—26 to 34 inches; dark brown (10YR 4/3) extremely cobbly medial loam, yellowish brown (10YR 5/4) dry; weak fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; weakly smeary; few fine, medium, and coarse roots; common very fine, fine, and medium and few coarse tubular pores; common medium dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 30 percent gravel and 35 percent cobbles; very strongly acid (pH 4.8); abrupt wavy boundary.

R—34 inches; very strongly cemented, highly fractured basalt; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Harslow very gravelly medial loam (fig. 93) in an area of Harslow-Klistan-Rock outcrop complex, 60 to 90 percent slopes

Location in survey area: In an area of woodland about 1,000 feet north and 1,000 feet west of the southeast corner of sec. 4, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:

Content of clay—18 to 27 percent (apparent, by field estimate)

Content of rock fragments—35 to 85 percent

Figure 93.—Typical profile of a Harslow very gravelly medial loam in an area of Klistan-Harslow complex, 30 to 60 percent slopes.

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches to a very strongly cemented, highly fractured lithic contact
Reaction—very strongly acid to moderately acid
Hue—10YR, 7.5YR, or 5YR
Consistence of solum—weakly smeary or moderately smeary

A and AB horizons:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—very gravelly medial loam
Content of clay—15 to 25 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 10 percent cobbles

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—very cobbly medial loam, very gravelly medial loam, or extremely cobbly medial loam
Content of clay—20 to 27 percent
Content of rock fragments—20 to 70 percent gravel and 0 to 35 percent cobbles

BC horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—extremely cobbly medial loam or extremely gravelly medial loam
Content of clay—15 to 25 percent
Content of rock fragments—30 to 70 percent gravel and 0 to 35 percent cobbles

Hazelair Series

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
General landscape: Hills
Parent material: Silty glaciolacustrine deposits and colluvium over clayey residuum derived from sandstone and siltstone or tuff
Slope: 2 to 30 percent
Elevation: 200 to 1,400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Very-fine, mixed, superactive, mesic Aquultic Haploxerolls

Typical Pedon

Ap—0 to 7 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine pores; many fine roots; moderately acid (pH 5.8); abrupt smooth boundary.
A—7 to 11 inches; dark yellowish brown (10YR 3/4) silty clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine pores; many fine roots; moderately acid (pH 5.6); abrupt smooth boundary.

Bw—11 to 18 inches; dark brown (10YR 4/3) silty clay, brown (10YR 5/3) dry; moderate fine subangular blocky structure; firm, very sticky and moderately plastic; many very fine pores; many fine roots; few fine faint clay films in some pores; few fine siltstone and sandstone fragments; few fine distinct masses of iron accumulation in lower part; strongly acid (pH 5.4); abrupt smooth boundary.

2C1—18 to 24 inches; light olive brown (2.5Y 5/4) clay, light gray (2.5Y 7/2) and pale yellow (2.5Y 7/4) dry; weak coarse prismatic structure that appears massive when wet; very firm, very sticky and very plastic; common very fine pores; few fine roots; many fine and very fine yellowish brown siltstone and sandstone pararock fragments; many fine distinct yellowish brown (10YR 5/4) masses of iron accumulation and many fine distinct grayish brown (10YR 5/2) iron depletions; strongly acid (pH 5.2); clear smooth boundary.

2C2—24 to 30 inches; grayish brown (2.5Y 5/2) clay, light gray (2.5Y 7/2) dry; massive; very firm, very sticky and very plastic; few fine pores; few fine and medium roots; common fine and very fine siltstone and sandstone pararock fragments; strongly acid (pH 5.2); abrupt wavy boundary.

2Crt—30 to 40 inches; moderately cemented, brownish yellow (10YR 6/6) sandstone and siltstone with light gray (10YR 7/1) lenses and light brownish gray (10YR 5/2) clay in fracture planes.

Typical Pedon Location

Map unit in which located: Hazelair silty clay loam, 12 to 20 percent slopes

Location in survey area: In a cultivated area about 2,500 feet east and 300 feet south of the northwest corner of sec. 29, T. 2 S., R. 4 W.

Range in Characteristics

Particle-size control section:

Content of clay—60 to 70 percent

Content of rock fragments—0 to 5 percent

Content of pararock fragments—0 to 25 percent

Profile:

Thickness of mollic epipedon—7 to 19 inches

Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact

Depth to redoximorphic features—10 to 20 inches to iron depletions, masses of iron accumulation in some areas

A horizon:

Hue—10YR or 7.5YR

Value—2 or 3 moist, 4 or 5 dry

Chroma—2 or 3 moist in upper 7 inches and 3 or 4 moist below a depth of 7 inches, 2 to 4 dry

Texture—silty clay loam

Content of clay—27 to 40 percent

Reaction—moderately acid or slightly acid

Content of rock fragments—0 to 5 percent gravel

Bw horizon:

Hue—2.5Y, 10YR, or 7.5YR

Value—3 or 4 moist, 5 or 6 dry

Chroma—2 to 4 moist or dry

Texture—silty clay loam, silty clay, or clay

Content of clay—35 to 50 percent

Reaction—strongly acid to slightly acid

Content of rock fragments—0 to 5 percent gravel

2C horizon:
Hue—2.5Y, 10YR, or 7.5YR
Value—4 to 6 moist, 5 to 7 dry
Chroma—1 to 4 moist or dry
Texture—clay or paragravelly clay
Content of clay—60 to 70 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 25 percent paragravel

Helmick Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
General landscape: Hills
Parent material: Silty glaciolacustrine deposits over clayey residuum derived from sandstone and siltstone
Slope: 3 to 12 percent
Elevation: 250 to 400
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Very-fine, mixed, superactive, mesic Vertic Haploxerepts

Typical Pedon

A—0 to 5 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; strong fine and medium granular structure and strong fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine pores; many very fine and fine roots; moderately acid (pH 5.8); clear wavy boundary.

Bw1—5 to 10 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine pores; many very fine roots; moderately acid (pH 5.6); clear wavy boundary.

Bw2—10 to 16 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate medium and coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine pores; many very fine roots; strongly acid (pH 5.4); abrupt wavy boundary.

2BC—16 to 22 inches; grayish brown (10YR 5/2) clay, light brownish gray (10YR 6/2) dry; weak medium prismatic structure; extremely hard, very firm, very sticky and very plastic; common very fine pores; many very fine and fine roots; few small pressure faces; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid (pH 5.2); clear wavy boundary.

2C1—22 to 28 inches; gray (10YR 5/1) clay, gray (10YR 6/1) dry; massive; extremely hard, very firm, very sticky and very plastic; common very fine pores; common very fine roots; few small pressure faces; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation and common medium faint very dark gray (10YR 3/1) iron depletions and concentrations; strongly acid (pH 5.2); clear wavy boundary.

2C2—28 to 36 inches; grayish brown (10YR 5/2) clay, light gray (10YR 7/2) dry; massive; extremely hard, very firm, very sticky and very plastic; common very fine pores; few very fine roots; few small pressure faces; common fine distinct

yellowish brown (10YR 5/6) masses of iron accumulation and common medium faint gray (10YR 5/1) iron depletions; strongly acid (pH 5.2); clear wavy boundary.

2C3—36 to 50 inches; light brownish gray (10YR 6/2) clay, light gray (10YR 7/2) dry; massive; extremely hard, very firm, very sticky and very plastic; few very fine pores; few very fine roots; few small pressure faces; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation and few medium faint gray (10YR 5/1) iron depletions; strongly acid (pH 5.2); clear wavy boundary.

2C4—50 to 62 inches; variegated light brownish gray (2.5Y 6/2) and strong brown (7.5YR 5/6) clay; massive; extremely hard, very firm, very sticky and very plastic; few very fine pores; very strongly acid (pH 5.0).

Typical Pedon Location

Map unit in which located: Helmick silt loam, 3 to 12 percent slopes

Location in survey area: In a cultivated area about 2,800 feet east and 2,200 feet north of the southwest corner of sec. 5, T. 9 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—60 to 65 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—0 to 10 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—10 to 30 inches to iron depletions, masses of iron accumulation in some areas

A horizon:
Hue—10YR or 7.5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—18 to 27 percent
Reaction—moderately acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 10 percent paragravel

Bw horizon:
Hue—10YR
Value—4 or 5 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silty clay loam or silty clay
Content of clay—27 to 45 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 10 percent paragravel

2BC and 2C1 horizons:
Hue—2.5Y or 10YR
Value—5 or 6 moist, 6 or 7 dry
Chroma—1 to 4 moist or dry
Texture—clay
Content of clay—60 to 70 percent
Reaction—very strongly acid or strongly acid
Content of rock fragments—0 to 5 percent gravel

Content of pararock fragments—0 to 15 percent paragravel

2C2 or 2C3 horizons:
Hue—2.5Y or 10YR
Value—5 or 6 moist, 6 or 7 dry
Chroma—1 to 4 moist or dry
Texture—clay or paragravelly clay
Content of clay—60 to 70 percent
Reaction—very strongly acid or strongly acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 35 percent paragravel

Helvetia Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
General landscape: Terraces
Parent material: Silty glaciolacustrine deposits over silty and clayey alluvium
Slope: 2 to 7 percent
Elevation: 200 to 500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Ultic Argixerolls

Typical Pedon

Ap1—0 to 5 inches; dark brown (10YR 3/3) silt loam, grayish brown (10YR 5/2) dry; moderate fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine pores; slightly acid (pH 6.4); abrupt smooth boundary.

Ap2—5 to 10 inches; dark brown (10YR 3/3) silty clay loam, grayish brown (10YR 5/2) dry; moderate medium, fine, and very fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; many very fine pores; slightly acid (pH 6.2); abrupt smooth boundary.

BAt—10 to 16 inches; dark yellowish brown (10YR 3/4) silty clay, brown (10YR 5/3) dry; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky and very plastic; common very fine roots; many very fine pores; common faint clay films on peds and many prominent clay films in pores and channels; slightly acid (pH 6.2); clear smooth boundary.

Bt1—16 to 28 inches; dark yellowish brown (10YR 3/4) silty clay, brown (10YR 5/3) dry; moderate coarse and medium subangular blocky structure; hard, friable, moderately sticky and very plastic; common very fine roots; many very fine pores; common faint clay films on peds and many prominent clay films in pores and channels; slightly acid (pH 6.2); clear smooth boundary.

Bt2—28 to 48 inches; dark yellowish brown (10YR 4/4) silty clay, pale brown (10YR 6/3) dry; moderate coarse and medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; common very fine pores; common faint clay films on peds and many distinct clay films in channels and pores; moderately acid (pH 5.8); clear smooth boundary.

BC—48 to 60 inches; dark yellowish brown (10YR 4/4) silty clay loam, pale brown (10YR 6/3) dry; weak medium and fine subangular blocky structure; hard, firm, moderately sticky and very plastic; few very fine roots; common very fine pores;

few fine distinct gray (10YR 6/1) and very dark grayish brown (10YR 3/2) iron depletions; few black stains; moderately acid (pH 5.8).

Typical Pedon Location

Map unit in which located: Helvetia silt loam, 2 to 7 percent slopes
Location in survey area: In a cultivated area about 2,400 feet east and 700 feet south of the northwest corner of sec. 21, T. 2 S., R. 2 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—0 to 5 percent

Profile:
Thickness of mollic epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Hue—10YR
Depth to redoximorphic features—30 inches or more to iron depletions, masses of iron accumulation in some areas
Content of rock fragments—0 to 5 percent gravel

A horizon:
Value—3 moist, 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam in upper part and silt loam or silty clay loam in lower part
Content of clay—15 to 35 percent
Reaction—moderately acid or slightly acid

BAt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—moderately acid or slightly acid

Bt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 50 percent
Reaction—strongly acid to slightly acid

BC horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam, silty clay loam, or silty clay
Content of clay—25 to 45 percent
Reaction—strongly acid or moderately acid

Hemcross Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains

Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 3 to 80 percent
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Medial, ferrihydritic, mesic Alic Hapludands

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.

A1—2 to 4 inches; very dark brown (7.5YR 2/2) medial loam, brown (7.5YR 4/2) dry; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and common fine roots; many very fine and fine irregular pores; common medium prominent dark brown (7.5YR 3/2) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 10 percent gravel; very strongly acid (pH 5.0); clear wavy boundary.

A2—4 to 10 inches; dark brown (7.5YR 3/2) medial loam, brown (7.5YR 4/3) dry; weak very fine and fine granular structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; many very fine, common fine, and few medium roots; many very fine and fine irregular pores; common medium prominent dark brown (7.5YR 3/2) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 10 percent gravel; very strongly acid (pH 5.0); clear smooth boundary.

AB—10 to 19 inches; dark brown (7.5YR 3/3) medial loam, brown (7.5YR 5/3) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and few fine and medium roots; many very fine and fine irregular pores; common medium prominent dark brown (7.5YR 3/2) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 10 percent gravel; very strongly acid (pH 4.8); clear smooth boundary.

Bw1—19 to 26 inches; dark brown (7.5YR 3/4) medial clay loam, light brown (7.5YR 6/4) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine, fine, and medium and few coarse roots; common fine tubular pores; 5 percent gravel; very strongly acid (pH 4.8); gradual smooth boundary.

Bw2—26 to 38 inches; dark brown (7.5YR 3/4) medial clay loam, light brown (7.5YR 6/4) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common fine and medium and few coarse roots; common fine tubular pores; 5 percent gravel; very strongly acid (pH 4.6); gradual smooth boundary.

Bw3—38 to 48 inches; brown (7.5YR 4/4) medial clay loam, pink (7.5YR 7/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium and few coarse roots; few fine tubular pores; 5 percent gravel; very strongly acid (pH 4.6); gradual smooth boundary.

Bw4—48 to 68 inches; brown (7.5YR 4/4) medial clay loam, pink (7.5YR 7/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine, medium, and coarse roots; few fine tubular pores; 5 percent gravel; very strongly acid (pH 4.6).

Typical Pedon Location

Map unit in which located: Hemcross medial loam in an area of Hemcross-Klistan complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 200 feet south and 1,150 feet west of the northeast corner of sec. 19, T. 13 S., R. 6 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent (apparent, by field estimate)
Total content of rock fragments—5 to 20 percent
Total content of pararock fragments—0 to 30 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Reaction—very strongly acid or strongly acid
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Hue—10YR, 7.5YR, or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—medial loam
Content of clay—15 to 25 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 20 percent paragravel

AB horizon, where present:
Color and texture—similar to A horizon

Bw horizon:
Hue—10YR, 7.5YR, or 5YR
Value—3 or 4 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—medial loam or medial clay loam
Content of clay—18 to 35 percent
Content of rock fragments—5 to 15 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 30 percent paragravel and 0 to 10 percent paracobbles

Holcomb Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
General landscape: Terraces
Parent material: Silty alluvium over silty and clayey glaciolacustrine deposits
Slope: 0 to 3 percent
Elevation: 150 to 650 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Typic Argialbolls

Typical Pedon

Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; weak coarse subangular blocky structure parting to moderate fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine pores; moderately acid (pH 5.6); clear smooth boundary.

A—6 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak coarse subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, moderately sticky and slightly plastic; many very fine roots; many very fine pores; few fine and medium black and reddish brown concretions; moderately acid (pH 5.8); clear smooth boundary.

E—18 to 24 inches; very dark grayish brown (10YR 3/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; common very fine pores; common clean silt and sand grains on faces of peds; few fine and medium black and reddish brown concretions; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; slightly acid (pH 6.2); abrupt smooth boundary.

2Btg—24 to 34 inches; dark grayish brown (10YR 4/2) clay, grayish brown (2.5Y 5/2) dry; weak coarse angular blocky structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine pores; common faint clay films on faces of peds; common fine and medium very dark brown (10YR 2/2) concretions; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; neutral (pH 6.6); clear smooth boundary.

2BCtg—34 to 50 inches; dark grayish brown (10YR 4/2) silty clay, grayish brown (10YR 5/2) dry; weak fine angular blocky structure; very hard, firm, very sticky and very plastic; common very fine pores; common faint clay films on faces of peds; common medium black concretions; neutral (pH 6.6); clear smooth boundary.

3C—50 to 60 inches; dark grayish brown (10YR 4/2) silt loam, grayish brown (10YR 5/2) dry; massive; hard, firm, moderately sticky and slightly plastic; few fine pores; neutral (pH 6.6).

Typical Pedon Location

Map unit in which located: Holcomb silt loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 2,700 feet east and 500 feet north of the southwest corner of sec. 4, T. 9 S., R. 2 W.

Range in Characteristics

Particle-size control section:

Content of clay—40 to 50 percent

Content of rock fragments—0 to 5 percent

Profile:

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Depth to abrupt textural change—15 to 30 inches

Depth to redoximorphic features—12 to 20 inches to iron depletions with masses of iron accumulation in some areas

A horizon:

Hue—10YR

Value—2 or 3 moist, 4 or 5 dry

Chroma—2 moist, 2 or 3 dry

Texture—silt loam in upper part, silt loam or silty clay loam in lower part

Content of clay—20 to 30 percent

Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

E horizon:
Hue—10YR
Value—3 or 4 moist, 5 to 7 dry
Chroma—2 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 30 percent
Reaction—moderately acid or slightly acid

2Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 5 moist, 4 to 6 dry
Chroma—1 or 2 moist or dry
Texture—silty clay or clay
Content of clay—40 to 50 percent
Reaction—slightly acid or neutral

2BCt horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay or clay
Content of clay—40 to 50 percent
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent gravel

3C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—silt loam, silty clay loam, or clay loam
Content of clay—25 to 40 percent
Reaction—slightly acid or neutral
Content of rock fragments—0 to 15 percent gravel

Honeygrove Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone or basalt
Slope: 3 to 60 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Taxonomic class: Fine, mixed, active, mesic Typic Palehumults

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.

A—2 to 6 inches; dark brown (7.5YR 3/3) paragravelly silty clay loam, brown (7.5YR 4/3) dry; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; few faint discontinuous clay films along surface of pores and few faint patchy clay films in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 5 percent gravel; 25 percent paragravel; strongly acid (pH 5.2); abrupt smooth boundary.

BAt—6 to 17 inches; dark brown (7.5YR 3/4) silty clay loam, brown (7.5YR 4/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine and medium and few very fine and coarse roots; common fine and medium and few very fine and coarse tubular pores; common faint clay films on faces of peds, along surface of pores, and in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 2 percent gravel; 10 percent paragravel; very strongly acid (pH 5.0); clear smooth boundary.

Bt1—17 to 31 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and few medium and coarse roots; few fine and medium tubular pores; common distinct clay films on faces of peds, along surface of pores, and in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 2 percent gravel; 5 percent paragravel; very strongly acid (pH 4.8); clear smooth boundary.

Bt2—31 to 43 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; strong medium subangular blocky structure; hard, very firm, moderately sticky and moderately plastic; few fine and medium roots; few fine and medium tubular pores; common prominent clay films on faces of peds, along surface of pores, and in root channels; 1 percent gravel; 2 percent paragravel; very strongly acid (pH 4.8); gradual smooth boundary.

Bt3—43 to 56 inches; dark reddish brown (5YR 3/4) silty clay, yellowish red (5YR 4/6) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine, medium, and coarse roots; few fine, medium, and coarse tubular pores; many prominent clay films on faces of peds, along surface of pores, and in root channels; 5 percent paragravel; very strongly acid (pH 4.8); gradual smooth boundary.

Bt4—56 to 75 inches; yellowish red (5YR 4/6) paragravelly silty clay, yellowish red (5YR 5/6) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium tubular pores; many prominent clay films on faces of peds, along surface of pores, and in root channels; 25 percent paragravel; very strongly acid (pH 4.8); abrupt wavy boundary.

Crt—75 to 85 inches; moderately cemented siltstone; fractures 18 inches to less than 39 inches apart; many distinct clay films coating pararock fragments.

Typical Pedon Location

Map unit in which located: Honeygrove paragravelly silty clay loam in an area of Honeygrove-Peavine complex, 3 to 30 percent slopes

Location in survey area: In an area of woodland about 2,310 feet south and 1,320 feet east of the northwest corner of sec. 1, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:

Content of clay—45 to 60 percent

Content of rock fragments—0 to 10 percent
Content of pararock fragments—0 to 35 percent

Profile:
Depth to bedrock—60 to 80 inches to a moderately cemented paralithic contact in areas underlain by sedimentary rock, typically more than 100 inches in areas underlain by basalt
Reaction—very strongly acid or strongly acid

A horizon:
Hue—7.5YR or 5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 to 4 moist or dry
Texture—paragravelly silty clay loam or silty clay loam
Content of clay—27 to 35 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 25 percent paragravel
Consistence in areas underlain by basalt—weakly smeary or moderately smeary

BAt horizon, where present:
Hue—7.5YR or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—silty clay loam, silty clay, or paragravelly silty clay loam
Content of clay—27 to 35 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 25 percent paragravel
Consistence in areas underlain by basalt—weakly smeary or moderately smeary

Bt horizon, and BCt horizon, where present:
Hue—5YR or 2.5YR
Value—3 to 5 moist, 4 to 7 dry
Chroma—4 to 6 moist or dry
Texture—silty clay, paragravelly silty clay, or clay
Content of clay—45 to 60 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 25 percent paragravel and 0 to 5 percent paracobbles to a depth of 48 inches and as much as 50 percent paragravel below this depth

Jory Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills and mountains
Parent material: Clayey colluvium and residuum derived from basalt or sandstone and siltstone (fig. 94)
Slope: 2 to 60 percent
Elevation: 250 to 2,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Fine, mixed, active, mesic Xeric Palehumults

Figure 94.—Typical profile of Jory silty clay loam, sedimentary bedrock, 2 to 12 percent slopes.

Typical Pedon

Ap—0 to 6 inches; dark reddish brown (5YR 3/4) silty clay loam, reddish brown (5YR 4/4) dry; moderate fine and very fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many roots; many very fine and fine irregular pores; few medium red and black concretions; moderately acid (pH 5.6); abrupt smooth boundary.

A—6 to 16 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; weak coarse subangular blocky structure parting to moderate fine and very fine granular; slightly hard, friable, moderately sticky and moderately plastic;

many roots; many very fine and fine irregular pores; few medium red and black concretions; moderately acid (pH 5.6); clear wavy boundary.

AB—16 to 19 inches; dark reddish brown (5YR 3/4) clay, yellowish red (5YR 4/6) dry; moderate coarse and medium granular structure; hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; many very fine and fine irregular and tubular pores; few medium red and black concretions; strongly acid (pH 5.4); clear wavy boundary.

Bt1—19 to 29 inches; dark reddish brown (2.5YR 3/4) clay, reddish brown (2.5YR 4/4) dry; strong medium and fine subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; many very fine tubular pores; few faint clay films on faces of peds; many fine red and black concretions; strongly acid (pH 5.3); clear smooth boundary.

Bt2—29 to 48 inches; dark reddish brown (2.5YR 3/4) clay, reddish brown (2.5YR 4/4) dry; strong medium subangular blocky structure; very hard, very firm, very sticky and very plastic; many very fine pores; many distinct and prominent clay films; many fine red and black concretions; strongly acid (pH 5.1); gradual smooth boundary.

Bt3—48 to 100 inches; dark red (2.5YR 3/6) clay, red (2.5YR 4/6) dry; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; many very fine tubular pores; many faint clay films; many medium prominent black coatings on peds (30 percent); strongly acid (pH 5.3).

Typical Pedon Location

Marion County, Oregon; in a cultivated area about 2,200 feet west and 2,000 feet south of the northeast corner of sec. 25, T. 8 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—45 to 60 percent
Content of rock fragments—0 to 15 percent

Profile:
Depth to bedrock—more than 60 inches
Base saturation—less than 35 percent throughout lower part of argillic horizon

Ap and A horizons:
Hue—5YR or 7.5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 5 percent gravel and 0 to 5 percent cobbles

A2 horizon, where present:
Hue—5YR
Value—3 moist, 3 or 4 dry
Chroma—3 or 4 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 5 percent gravel and 0 to 5 percent cobbles

AB horizon, and BA horizon, where present:
Hue—5YR or 2.5YR
Value—3 moist, 3 or 4 dry

Chroma—3 or 4 moist, 4 to 6 dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 60 percent
Reaction—very strongly acid to moderately acid
Content of rock fragments—0 to 5 percent gravel and 0 to 5 percent cobbles

Bt horizon:
Hue—2.5YR or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—clay, silty clay, cobbly silty clay, or paragravelly silty clay
Content of clay—45 to 60 percent
Reaction—very strongly acid to moderately acid
Content of rock fragments—0 to 15 percent gravel, 0 to 25 percent cobbles, and 0 to 10 percent stones
Content of pararock fragments—0 to 50 percent paragravel

Kilchis Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 60 to 90 percent
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Loamy-skeletal, isotic, mesic Humic Lithic Dystrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt wavy boundary.

A—1 to 9 inches; dark brown (7.5YR 3/2) cobbly medial loam, brown (7.5YR 4/4) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine and common medium and coarse roots; many very fine and fine, common medium, and few coarse irregular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; strongly acid (pH 5.2); clear wavy boundary.

Bw—9 to 14 inches; brown (7.5YR 4/3) very cobbly loam, brown (7.5YR 4/4) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine, common medium, and few coarse roots; common very fine, fine, and medium and few coarse tubular pores; 25 percent gravel, 25 percent cobbles, and 7 percent stones; strongly acid (pH 5.2); clear wavy boundary.

C—14 to 17 inches; strong brown (7.5YR 4/6) very cobbly loam, strong brown (7.5YR 5/6) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common fine and medium and few coarse roots; common fine and medium and few coarse tubular pores; 20 percent gravel, 25 percent cobbles, and 10 percent stones; strongly acid (pH 5.3); abrupt wavy boundary.

R—17 inches; highly fractured, indurated basalt; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Kilchis cobbly medial loam in an area of Harslow-Kilchis-Rock outcrop complex, 60 to 90 percent slopes
Location in survey area: In an area of woodland about 1,980 feet south and 450 feet east of the northwest corner of sec. 19, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 27 percent (apparent, by field estimates)
Content of rock fragments—35 to 85 percent

Profile:
Thickness of umbric epipedon—7 to 20 inches
Depth to bedrock—12 to 20 inches to an indurated, highly fractured lithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 5YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—cobbly medial loam
Content of clay—15 to 20 percent
Content of rock fragments—10 to 15 percent gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

Bw horizon:
Value—2 to 4 moist, 3 to 6 dry
Chroma—2 to 4 moist or dry
Texture—very gravelly loam, very cobbly loam, or extremely cobbly loam
Content of clay—18 to 27 percent
Content of rock fragments—15 to 40 percent gravel, 20 to 30 percent cobbles, and 0 to 10 percent stones

C horizon:
Value—2 to 4 moist, 3 to 6 dry
Chroma—2 to 6 moist or dry
Texture—very gravelly loam, very cobbly loam, or extremely cobbly sandy loam
Content of clay—15 to 27 percent
Content of rock fragments—15 to 40 percent gravel, 20 to 30 percent cobbles, and 5 to 15 percent stones

Kilowan Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 60 percent
Elevation: 1,300 to 1,800 feet
Mean annual precipitation: 80 to 100 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 180 days

Taxonomic class: Fine, isotic, mesic Typic Dystrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 8 inches; dark brown (7.5YR 3/3) paragravelly silty clay loam, brown (7.5YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; common medium distinct dark reddish brown (5YR 3/2) and yellowish red (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 10 percent gravel; 10 percent paragravel; very strongly acid (pH 4.9); clear smooth boundary.

BA—8 to 14 inches; dark reddish brown (5YR 3/4) paragravelly silty clay, reddish brown (5YR 5/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; common medium distinct dark reddish brown (5YR 3/2) and reddish yellow (5YR 5/6) iron-manganese concretions that are spherical in matrix and weakly cemented; 10 percent gravel; 15 percent paragravel; very strongly acid (pH 4.9); clear smooth boundary.

Bw1—14 to 23 inches; reddish brown (5YR 4/4) paragravelly silty clay, yellowish red (5YR 5/6) dry; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 10 percent gravel; 20 percent paragravel; very strongly acid (pH 5.0); gradual smooth boundary.

Bw2—23 to 31 inches; yellowish red (5YR 4/6) paragravelly silty clay, yellowish red (5YR 5/6) dry; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine and few medium and coarse roots; few fine tubular pores; 10 percent gravel; 20 percent paragravel; very strongly acid (pH 5.0); abrupt wavy boundary.

Crt—31 inches; moderately cemented sandstone; fractures 18 inches to less than 39 inches apart; few coarse roots in cracks; many distinct and prominent clay films coating rock fragments and in cracks.

Typical Pedon Location

Map unit in which located: Kilowan paragravelly silty clay loam in an area of Blachly-Kilowan complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 850 feet south and 2,480 feet west of the northeast corner of sec. 27, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—5 to 10 percent
Content of pararock fragments—10 to 30 percent

Profile:
Depth to bedrock—20 to 40 inches to a moderately cemented, partially weathered paralithic contact
Reaction—very strongly acid or strongly acid

A horizon:
Hue—7.5YR or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 to 4 moist, 3 to 6 dry
Texture—paragravelly silty clay loam

Content of clay—27 to 35 percent
Content of rock fragments—0 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 15 percent paragravel and 0 to 5 percent paracobbles

AB horizon, where present, and BA horizon:
Hue—7.5YR or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—paragravelly silty clay, or silty clay loam
Content of clay—30 to 45 percent
Content of rock fragments—5 to 10 percent gravel
Content of pararock fragments—10 to 25 percent paragravel and 0 to 5 percent paracobbles

Bw horizon:
Hue—5YR or 2.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist, 4 to 8 dry
Texture—paragravelly silty clay, paragravelly clay, or paragravelly silty clay loam
Content of clay—35 to 50 percent
Content of rock fragments—5 to 10 percent gravel
Content of pararock fragments—10 to 25 percent paragravel and 0 to 5 percent paracobbles

Kirkendall Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Flood plains
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope: 0 to 3 percent
Elevation: 200 to 750 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Oxyaquic Dystrudepts

Typical Pedon

A1—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine irregular pores; strongly acid (pH 5.2); clear smooth boundary.
A2—8 to 17 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine granular structure parting to moderate very fine and fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine irregular pores; strongly acid (pH 5.2); gradual smooth boundary.
Bw—17 to 36 inches; brown (10YR 4/3) silt loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine tubular pores; very strongly acid (pH 4.8); gradual smooth boundary.
BC—36 to 47 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown

(10YR 6/4) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many very fine tubular pores; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid (pH 4.6); gradual wavy boundary.

C—47 to 68 inches; yellowish brown (10YR 5/4) loam, light yellowish brown (10YR 6/4) dry; massive; hard, firm, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many very fine tubular pores; common medium distinct strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation; very strongly acid (pH 4.6).

Typical Pedon Location

Map unit in which located: Kirkendall silt loam in an area of Kirkendall-Nekoma-Quosatana complex, 0 to 3 percent slopes

Location in survey area: In an area of woodland about 1,000 feet north and 1,800 feet east of the southwest corner of sec. 25, T. 14 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 35 percent
Content of sand—less than 15 percent, by weight, fine sand or coarser

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—masses of iron accumulation with chroma of more than 2 below a depth of 30 inches, iron depletions with chroma of 2 or less below a depth of 40 inches in some areas
Reaction—very strongly acid to slightly acid
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—15 to 25 percent

Bw horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent

BC horizon, where present:
Value—4 or 5 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam, loam, or silty clay loam
Content of clay—20 to 35 percent

C horizon:
Value—4 or 5 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam, loam, or silty clay loam
Content of clay—15 to 30 percent

Klistan Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 90 percent
Elevation: 300 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Medial-skeletal, ferrihydritic, mesic Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 17 inches; dark brown (7.5YR 3/2) very gravelly medial loam, brown (7.5YR 4/3) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine, fine, and medium and few coarse irregular pores; many fine and medium dark reddish brown (5YR 3/3) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 40 percent gravel and 5 percent cobbles; 10 percent paragravel; very strongly acid (pH 5.0); clear smooth boundary.

Bw1—17 to 25 inches; dark brown (7.5YR 3/4) very gravelly medial loam, brown (7.5YR 4/4) dry; weak very fine and fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; common fine and medium and few coarse roots; many very fine, fine, and medium and few coarse tubular pores; many fine and medium dark reddish brown (5YR 3/3) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 40 percent gravel and 10 percent cobbles; 10 percent paragravel and 5 percent paracobbles; very strongly acid (pH 5.0); clear smooth boundary.

Bw2—25 to 43 inches; dark brown (7.5YR 4/3) very cobbly medial loam, brown (7.5YR 5/4) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common fine and medium and few coarse roots; common very fine, fine, and medium and few coarse tubular pores; common medium dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 25 percent gravel and 25 percent cobbles; 10 percent paragravel and 5 percent paracobbles; very strongly acid (pH 4.8); gradual smooth boundary.

BC—43 to 56 inches; dark brown (7.5YR 4/4) extremely cobbly medial loam, brown (7.5YR 5/4) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common medium and coarse roots; common very fine and fine and few medium and coarse tubular pores; common medium dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and weakly cemented; 40 percent gravel and 30 percent cobbles; 10 percent paragravel and 5 percent paracobbles; very strongly acid (pH 4.8); abrupt wavy boundary.

R—56 inches; very strongly cemented, highly fractured, coarse-grained intrusive

igneous rock; fractures 4 inches to less than 18 inches apart; common medium and coarse roots in fractures.

Typical Pedon Location

Map unit in which located: Klistan very gravelly medial loam in an area of Hemcross-Klistan complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 1,160 feet north and 1,380 feet east of the southwest corner of sec. 20, T. 13 S., R. 6 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 27 percent (apparent, by field estimates)
Content of rock fragments—35 to 70 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—40 to 60 inches to a very strongly cemented, highly fractured lithic contact
Reaction—very strongly acid or strongly acid
Hue—5YR, 7.5YR, or 10YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 2 to 5 dry
Chroma—1 to 3 moist, 2 or 3 dry
Texture—very gravelly medial loam
Content of clay—12 to 18 percent
Content of rock fragments—20 to 50 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 15 percent paragravel and 0 to 5 percent paracobbles

Bw and BC horizons:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—very gravelly medial loam, very cobbly medial loam, or extremely cobbly medial loam
Content of clay—18 to 27 percent
Content of rock fragments—25 to 40 percent gravel and 10 to 30 percent cobbles
Content of pararock fragments—10 to 30 percent paragravel and 0 to 20 percent paracobbles

Laderly Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Medial-skeletal, ferrihydritic, frigid Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 15 inches; very dark grayish brown (10YR 3/2) very gravelly medial loam, brown (10YR 4/3) dry; moderate very fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine tubular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish brown (5YR 4/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 40 percent gravel and 5 percent cobbles; very strongly acid (pH 4.7); clear smooth boundary.

Bw1—15 to 29 inches; dark yellowish brown (10YR 3/4) very cobbly medial loam, dark yellowish brown (10YR 4/4) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common fine and few medium and coarse roots; many very fine tubular pores; common medium dark reddish brown (5YR 3/4) and yellowish brown (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 35 percent gravel and 20 percent cobbles; strongly acid (pH 5.2); gradual wavy boundary.

Bw2—29 to 37 inches; dark yellowish brown (10YR 3/4) extremely cobbly medial loam, yellowish brown (10YR 5/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine, medium, and coarse roots; many very fine tubular pores; common medium dark reddish brown (5YR 3/4) and yellowish brown (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 25 percent gravel, 50 percent cobbles, and 5 percent stones; strongly acid (pH 5.3); abrupt wavy boundary.

R—37 inches; indurated highly fractured basalt; fractures 4 inches to less than 18 inches apart; few coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Laderly very gravelly medial loam in an area of Caterl-Laderly-Romanose complex, 30 to 60 percent slopes (fig. 95)

Location in survey area: In an area of woodland about 1,400 feet north and 2,200 feet west of the southeast corner of sec. 33, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 27 percent (apparent, by field estimates)
Content of rock fragments—35 to 85 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches to an indurated, highly fractured lithic contact
Hue—10YR to 5YR
Reaction—very strongly acid or strongly acid
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 dry
Texture—very gravelly medial loam
Content of clay—12 to 20 percent

Figure 95.—Typical profile of Laderly very gravelly medial loam in an area of Caterl-Laderly-Romanose complex, 30 to 60 percent slopes.

Content of rock fragments—25 to 50 percent gravel and 0 to 10 percent cobbles

Bw horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—very gravelly medial loam, very cobbly medial loam, or extremely cobbly medial loam
Content of clay—15 to 27 percent
Content of rock fragments—20 to 60 percent gravel, 0 to 50 percent cobbles, and 0 to 10 percent stones

Linslaw Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
General landscape: Terraces
Parent material: Loamy glaciolacustrine deposits over clayey alluvium

Slope: 0 to 8 percent
Elevation: 250 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Aquultic Haploxeralfs

Typical Pedon

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common fine irregular pores; strongly acid (pH 5.4); abrupt smooth boundary.

A—5 to 16 inches; dark brown (10YR 3/3) loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; common black stains in pores; common fine faint brown (10YR 5/3) masses of iron accumulation; strongly acid (pH 5.4); clear smooth boundary.

Bt—16 to 28 inches; pale brown (10YR 6/3) clay loam, very pale brown (10YR 7/3) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; many very fine tubular pores; few fine faint light brownish gray (10YR 6/2) iron depletions and common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; few distinct clay films; strongly acid (pH 5.3); clear wavy boundary.

BCt—28 to 42 inches; light olive brown (2.5Y 5/3) clay loam, very pale brown (10YR 7/3) dry; moderate fine prismatic structure; hard, firm, moderately sticky and moderately plastic; few fine roots; many fine and very fine tubular pores; many medium faint light brownish gray (2.5Y 6/2) iron depletions and prominent yellowish brown (10YR 5/6) masses of iron accumulation; light gray (2.5Y 7/2) coatings of silt and/or sand on faces of prisms; few distinct clay films in pores and on surface of peds; strongly acid (pH 5.3); abrupt wavy boundary.

2C1—42 to 56 inches; variegated yellowish red (5YR 5/6), yellowish brown (10YR 5/6), and gray (10YR 6/1) clay; massive; very hard, very firm, moderately sticky and very plastic; few fine roots; common very fine tubular pores; strongly acid (pH 5.4); clear wavy boundary.

2C2—56 to 60 inches; grayish brown (2.5Y 5/2) sandy clay loam, light gray (2.5Y 7/2) dry; massive; hard, friable, slightly sticky and slightly plastic; common very fine tubular pores; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid (pH 5.6).

Typical Pedon Location

Map unit in which located: Linslaw loam, 0 to 3 percent slopes
Location in survey area: In an area of pasture and woodland about 1,200 feet south and 2,200 feet east of the northwest corner of sec. 5, T. 18 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 45 percent
Content of rock fragments—0 to 5 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—10 to 20 inches to iron depletions and masses of iron accumulation
Content of rock fragments—0 to 5 percent gravel

A horizon:
Hue—10YR or 7.5YR
Value—3 or 4 moist, 6 dry
Chroma—2 or 3 moist or dry
Texture—loam
Content of clay—15 to 25 percent
Reaction—strongly acid or moderately acid

Bt and BCt horizons:
Hue—2.5Y or 10YR
Value—4 to 6 moist, 6 or 7 dry
Chroma—3 moist or dry
Texture—clay loam or clay
Content of clay—35 to 45 percent
Reaction—very strongly acid or strongly acid

2C1 horizon:
Hue—2.5Y, 10YR, 7.5YR, or 5YR
Value—4 to 6 moist, 6 or 7 dry
Chroma—1 to 6 moist or dry
Texture—clay
Content of clay—50 to 55 percent
Reaction—very strongly acid to moderately acid

2C2 horizon:
Hue—2.5Y, 10YR, 7.5YR, or 5YR
Value—4 to 6 moist, 6 or 7 dry
Chroma—1 to 6 moist or dry
Texture—sandy loam or sandy clay loam
Content of clay—10 to 25 percent
Reaction—very strongly acid to moderately acid

Luckiamute Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 30 to 90 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Loamy-skeletal, isotic Lithic Dystrocryepts

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.

A—2 to 6 inches; very dark brown (7.5YR 3/2) extremely cobbly medial loam, dark yellowish brown (10YR 4/4) dry; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; strongly smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; 20 percent gravel, 40 percent cobbles, and 10 percent stones; very strongly acid (pH 4.6); gradual wavy boundary.

Bw—6 to 17 inches; dark brown (7.5YR 4/3) extremely cobbly loam, yellowish brown

(10YR 5/4) dry; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; strongly smeary; common very fine, fine, and medium and few coarse roots; many fine irregular pores; 20 percent gravel, 50 percent cobbles, and 10 percent stones; very strongly acid (pH 4.8); abrupt wavy boundary.

R—17 inches; very strongly cemented, highly fractured sandstone; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Luckiamute extremely cobbly medial loam in an area of Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 750 feet south and 1,320 feet east of the northwest corner of sec. 21, T. 13 S, R. 8 W.

Range in Characteristics

Particle-size control section:

Content of clay—18 to 30 percent (apparent, by field estimates)

Content of rock fragments—50 to 80 percent, including channer-shaped fragments (shaly textural modifiers) and angular or subangular fragments (gravelly and cobbly textural modifiers)

Profile:

Depth to bedrock—14 to 20 inches to a very strongly cemented, highly fractured lithic contact

Hue—7.5YR or 10YR

Reaction—very strongly acid or strongly acid

Consistence of solum—strongly smeary or moderately smeary

A horizon:

Value—3 to 5 moist, 4 to 6 dry

Chroma—2 or 3 moist, 3 or 4 dry

Texture—extremely cobbly medial loam

Content of clay—12 to 20 percent

Content of rock fragments—20 to 30 percent gravel, 40 to 50 percent cobbles, and 0 to 10 percent stones

Bw horizon:

Value—4 or 5 moist, 5 to 7 dry

Chroma—3 or 4 moist or dry

Texture—very cobbly loam, very cobbly clay loam, or extremely cobbly loam

Content of clay—18 to 30 percent

Content of rock fragments—10 to 20 percent gravel, 40 to 50 percent cobbles, and 0 to 10 percent stones

Lurnick Series

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Moderately rapid

General landscape: Mountains

Parent material: Loamy colluvium and residuum derived from sandstone and siltstone

Slope: 30 to 90 percent

Elevation: 3,000 to 4,100 feet

Mean annual precipitation: 120 to 150 inches

Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Loamy-skeletal, isotic Andic Dystrocryepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 8 inches; dark brown (7.5YR 3/3) very cobbly medial loam, brown (7.5YR 5/4) dry; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; strongly smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine irregular pores; 10 percent gravel, 30 percent cobbles, and 4 percent stones; very strongly acid (pH 4.9); clear wavy boundary.

Bw1—8 to 22 inches; dark brown (7.5YR 3/4) very cobbly loam, strong brown (7.5YR 5/6) dry; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; moderately smeary; common very fine, fine, and medium and few coarse roots; many very fine and fine irregular pores; 15 percent gravel, 30 percent cobbles, and 4 percent stones; strongly acid (pH 5.3); clear wavy boundary.

Bw2—22 to 29 inches; brown (7.5YR 4/4) extremely cobbly sandy loam, strong brown (7.5YR 5/6) dry; weak fine subangular blocky structure; soft, loose, nonsticky and nonplastic; moderately smeary; common very fine, fine, medium, and coarse roots; common fine irregular pores; 15 percent gravel, 45 percent cobbles, and 10 percent stones; strongly acid (pH 5.3); gradual wavy boundary.

BC—29 to 36 inches; dark yellowish brown (10YR 4/6) extremely cobbly sandy loam, reddish yellow (7.5YR 6/6) dry; weak fine subangular blocky structure; soft, loose, nonsticky and nonplastic; weakly smeary; few very fine, fine, medium, and coarse roots; common fine irregular pores; 20 percent gravel, 50 percent cobbles, and 10 percent stones; strongly acid (pH 5.5); abrupt wavy boundary.

Cr—36 to 40 inches; moderately cemented sandstone; abrupt wavy boundary.

R—40 inches; indurated, highly fractured sandstone; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Lurnick very cobbly medial loam in an area of Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes (fig. 96)

Location in survey area: In an area of woodland about 1,400 feet south and 1,380 feet east of the northwest corner of sec. 21, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 25 percent (apparent, by field estimates)
Content of rock fragments—35 to 80 percent, including channer-shaped fragments (shaly textural modifiers) and angular or subangular fragments (gravelly or cobbly textural modifiers)
Content of pararock fragments—0 to 35 percent

Profile:
Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact, 30 to 50 inches to indurated, highly fractured, consolidated sandstone
Hue—7.5YR or 10YR
Reaction—very strongly acid or strongly acid
Consistence of solum—strongly smeary or moderately smeary

A horizon:
Value—3 or 4 moist, 5 or 6 dry

Figure 96.—Typical profile of Lurnick very cobbly medial loam in an area of Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes.

Chroma—2 or 3 moist, 3 or 4 dry
Texture—very cobbly medial loam
Content of clay—18 to 25 percent
Content of rock fragments—10 to 15 percent gravel, 30 to 40 percent cobbles, and 0 to 5 percent stones

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—very cobbly loam, extremely cobbly sandy loam, or extremely cobbly sandy clay loam
Content of clay—15 to 25 percent
Content of rock fragments—15 to 25 percent gravel, 30 to 50 percent cobbles, and 0 to 10 percent stones
Content of pararock fragments—0 to 30 percent paragravel and 0 to 10 percent paracobbles

BC horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—4 to 8 moist or dry
Texture—very cobbly loam, extremely cobbly sandy loam, or extremely cobbly sandy clay loam
Content of clay—15 to 25 percent
Content of rock fragments—15 to 25 percent gravel, 30 to 50 percent cobbles, and 0 to 10 percent stones

Content of pararock fragments—0 to 30 percent paragravel and 0 to 20 percent paracobbles

The Lurnick soils in this survey area are a taxadjunct to the series because the percentage of clay in the particle-size control section is outside the range for the series. The Lurnick soils in this county are loamy-skeletal, while the soils in the Lurnick series are clayey-skeletal. This difference, however, does not significantly affect use and management of the soils.

MacDunn Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium derived from basalt
Slope: 30 to 90 percent
Elevation: 240 to 2,200 feet
Mean annual precipitation: 50 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Clayey-skeletal, mixed, superactive, mesic Typic Haploxerepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 7 inches; dark brown (7.5YR 3/4) gravelly silty clay loam, brown (7.5YR 4/4) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium and coarse roots; many very fine tubular pores; 15 percent gravel and 5 percent cobbles; moderately acid (pH 5.8); clear smooth boundary.

AB—7 to 15 inches; dark brown (7.5YR 3/4) gravelly silty clay loam, brown (7.5YR 4/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium and few very fine and coarse roots; many very fine tubular pores; 15 percent gravel and 5 percent cobbles; moderately acid (pH 5.6); clear smooth boundary.

Bw1—15 to 24 inches; dark brown (7.5YR 3/4) very cobbly silty clay, brown (7.5YR 4/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium and few very fine and coarse roots; common very fine tubular pores; 20 percent gravel and 30 percent cobbles; strongly acid (pH 5.4); gradual wavy boundary.

Bw2—24 to 38 inches; dark brown (7.5YR 3/4) very cobbly silty clay, brown (7.5YR 4/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium and few coarse roots; few very fine tubular pores; 20 percent gravel and 35 percent cobbles; strongly acid (pH 5.2); gradual wavy boundary.

Bw3—38 to 51 inches; dark brown (7.5YR 3/4) extremely cobbly silty clay, brown (7.5YR 4/4) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine, medium, and coarse roots; few very fine tubular pores; 25 percent gravel, 45 percent cobbles, and 5 percent stones; strongly acid (pH 5.2); abrupt wavy boundary.

2Cr—51 inches; moderately cemented, highly fractured basalt.

Typical Pedon Location

Map unit in which located: MacDunn gravelly silty clay loam in an area of Price-MacDunn-Ritner complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 2,100 feet north and 250 feet west of the southeast corner of sec. 35, T. 10 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—35 to 85 percent

Profile:
Thickness of ochric epipedon—15 inches
Depth to bedrock—40 to 60 inches to a moderately cemented paralithic contact
Reaction—moderately acid or strongly acid

A and AB horizons:
Hue—10YR, 7.5YR, or 5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—gravelly silty clay loam or gravelly clay loam
Content of clay—27 to 35 percent
Content of rock fragments—15 to 25 percent gravel and 5 to 10 percent cobbles; as much as 5 percent of soil surface covered with stones in some areas

Bw1 and Bw2 horizons:
Hue—7.5YR, 5YR, or 2.5YR
Value—3 to 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—very cobbly silty clay loam, very cobbly silty clay, very cobbly clay, or extremely cobbly clay loam
Content of clay—35 to 50 percent
Content of rock fragments—20 to 30 percent gravel, 30 to 60 percent cobbles, and 0 to 5 percent stones

Bw3 horizon:
Hue—7.5YR, 5YR, or 2.5YR
Value—3 to 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—very cobbly clay loam, extremely cobbly silty clay loam, extremely cobbly silty clay, or extremely cobbly clay
Content of clay—35 to 50 percent
Content of rock fragments—20 to 30 percent gravel, 30 to 60 percent cobbles, and 0 to 5 percent stones

Malabon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Terraces and flood plains
Parent material: Clayey and loamy alluvium

Slope: 0 to 3 percent
Elevation: 150 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical Pedon

Ap—0 to 7 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; strong very fine granular structure; hard, friable, slightly sticky and slightly plastic; many very fine roots; many irregular pores; moderately acid (pH 5.6); clear smooth boundary.

AB—7 to 12 inches; dark brown (7.5YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure and strong very fine granular; hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine and few fine tubular pores; very dark brown (10YR 2/2) coatings on peds; slightly acid (pH 6.1); clear wavy boundary.

Bt1—12 to 19 inches; dark brown (10YR 3/3) silty clay, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure and moderate very fine granular; hard, firm, moderately sticky and moderately plastic; common very fine roots; common fine and very fine and few medium tubular pores; many prominent very dark grayish brown (10YR 3/2) clay films on faces of peds and along pores; slightly acid (pH 6.3); clear wavy boundary.

Bt2—19 to 29 inches; dark brown (10YR 3/3) silty clay, brown (10YR 5/3) dry; moderate medium and very fine subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine roots; common very fine and few medium tubular pores; many prominent dark brown (7.5YR 3/2) clay films on faces of peds and along pores; slightly acid (pH 6.5); clear wavy boundary.

BCt—29 to 42 inches; brown (10YR 4/3) silty clay loam, brown (10YR 5/3) dry; weak coarse subangular blocky structure; very hard, firm, slightly sticky and moderately plastic; common very fine roots; common fine and medium tubular pores; common prominent dark brown (7.5YR 3/2) clay films on faces of peds and along pores; neutral (pH 6.8); clear wavy boundary.

2C—42 to 60 inches; brown (10YR 4/3) clay loam, brown (10YR 4/3) dry; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; neutral (pH 6.9).

Typical Pedon Location

Map unit in which located: Malabon silty clay loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 1,950 feet west and 1,950 feet north of the southeast corner of sec. 12, T. 15 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 45 percent
Content of rock fragments—0 to 5 percent

Profile:
Thickness of mollic epipedon—20 to 30 inches
Depth to bedrock—more than 60 inches
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry

Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

AB horizon, and BA horizon, where present:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

Bt horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent gravel

2C horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—fine sandy loam, loam, clay loam, or sandy clay loam
Content of clay—15 to 30 percent
Reaction—slightly acid or neutral
Content of rock fragments—0 to 10 percent gravel

Maryspeak Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Ancient landslide deposits on mountains
Parent material: Sandy colluvium derived from a mixture of sandstone and coarse-grained intrusive igneous rock
Slope: 5 to 60 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Sandy-skeletal, isotic Andic Dystrocryepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
Oe—1 to 2 inches; moderately decomposed plant material; abrupt smooth boundary.
A1—2 to 4 inches; dark brown (7.5YR 3/2) gravelly medial sandy loam, brown (7.5YR 4/4) dry; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine tubular pores; 20 percent fine gravel and 3 percent cobbles; few slightly weathered, strongly cemented gabbro fragments of local volcanic intrusive rock; rock fragments are dominantly fine in

size and subangular or platy in shape; very strongly acid (pH 5.0); clear smooth boundary.

A2—4 to 9 inches; dark brown (7.5YR 3/3) gravelly medial sandy loam, brown (7.5YR 5/4) dry; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine tubular pores; 20 percent fine gravel and 3 percent cobbles; few slightly weathered, strongly cemented gabbro fragments of local volcanic intrusive rock; rock fragments are dominantly fine in size and subangular and platy in shape; strongly acid (pH 5.1); clear smooth boundary.

BA—9 to 13 inches; brown (10YR 4/3) very gravelly sandy loam, yellowish brown (10YR 5/6) dry; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; 35 percent gravel and 5 percent cobbles; few slightly weathered, strongly cemented gabbro fragments of local volcanic intrusive rock; rock fragments are dominantly fine in size and subangular and platy in shape; strongly acid (pH 5.2); clear smooth boundary.

Bw—13 to 34 inches; dark yellowish brown (10YR 4/4) very gravelly loamy fine sand, yellowish brown (10YR 5/6) dry; weak fine subangular blocky structure; loose, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; many fine interstitial pores and few very fine tubular pores; 40 percent gravel and 5 percent cobbles; few slightly weathered, strongly cemented gabbro fragments of local volcanic intrusive rock; rock fragments are dominantly fine in size and subangular and platy in shape; strongly acid (pH 5.2); gradual smooth boundary.

BC—34 to 59 inches; dark yellowish brown (10YR 4/4) very gravelly loamy fine sand, yellowish brown (10YR 5/6) dry; coarse brown (10YR 4/3) mottles as a result of mixing; weak fine subangular blocky structure; loose, nonsticky and nonplastic; weakly smeary; few fine and medium roots; many fine and medium interstitial pores and few very fine tubular pores; 35 percent gravel and 10 percent cobbles; few slightly weathered, strongly cemented gabbro fragments of local volcanic intrusive rock; rock fragments are dominantly fine in size and subangular and platy in shape; strongly acid (pH 5.4); gradual wavy boundary.

C—59 to 73 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, brownish yellow (10YR 6/6) dry; massive; loose, nonsticky and nonplastic; weakly smeary; many fine and medium interstitial pores and few very fine tubular pores; 35 percent gravel and 10 percent cobbles; few slightly weathered, strongly cemented gabbro fragments of local volcanic intrusive rock; rock fragments are dominantly fine in size and subangular and platy in shape; strongly acid (pH 5.4).

Typical Pedon Location

Map unit in which located: Typical pedon of Maryspeak gravelly medial sandy loam, 5 to 30 percent slopes

Location in survey area: In an area of woodland about 720 feet south and 2,150 feet east of the northwest corner of sec. 21, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:

Content of clay—5 to 12 percent (apparent, by field estimates)

Content of sand—75 to 90 percent, with less than 20 percent very fine sand

Content of rock fragments—35 to 50 percent, dominantly fine in size and subangular in shape, but may be platy in shape

Profile:
Depth to bedrock—more than 80 inches
Reaction—very strongly acid or strongly acid in solum
Hue—7.5YR or 10YR
Consistence of upper 7 to 9 inches of solum—weakly smeary or moderately smeary

A horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 or 3 moist, 4 dry
Texture—gravelly medial sandy loam
Content of clay—10 to 15 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 5 percent cobbles

BA horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—very gravelly sandy loam, very gravelly loamy sand, or very gravelly loamy fine sand
Content of clay—5 to 12 percent clay
Content of rock fragments—35 to 50 percent gravel and 0 to 5 percent cobbles

Bw horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—very gravelly loamy sand, very gravelly loamy fine sand, or very gravelly sand
Content of clay—5 to 12 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 5 percent cobbles

BC horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—very gravelly loamy fine sand, very gravelly loamy sand, or very gravelly sand
Content of clay—5 to 10 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 10 percent cobbles

C horizon:
Value—5 or 6 moist, 6 or 7 dry
Chroma—4 to 6 moist or dry
Texture—very gravelly sandy loam, very gravelly loamy sand, or very gravelly loamy fine sand
Content of clay—5 to 15 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 10 percent cobbles
Reaction—strongly acid or moderately acid

McAlpin Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
General landscape: Flood plains and alluvial fans
Parent material: Clayey alluvium derived from basalt or mixed sedimentary and igneous rock
Slope: 0 to 6 percent

Elevation: 250 to 1,000
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Aquic Cumulic Haploxerolls

Typical Pedon

Ap1—0 to 5 inches; dark brown (7.5YR 3/2) silty clay loam, brown (7.5YR 4/2) dry; moderate fine and very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; many irregular pores; few medium and fine reddish brown (5YR 4/4) concretions; strongly acid (pH 5.5); abrupt smooth boundary.

Ap2—5 to 8 inches; dark brown (7.5YR 3/2) silty clay loam, reddish brown (5YR 4/3) dry; massive; hard, very firm, slightly sticky and slightly plastic; common roots; few very fine pores; few medium and fine reddish brown (5YR 4/4) concretions; moderately acid (pH 5.6); clear smooth boundary.

AB—8 to 14 inches; dark reddish brown (5YR 3/3) silty clay loam, reddish brown (5YR 4/3) dry; moderate coarse and fine granular structure; hard, friable, slightly sticky and slightly plastic; few roots; many very fine tubular pores; common medium and fine reddish brown (5YR 4/4) concretions; moderately acid (pH 5.7); gradual smooth boundary.

BA—14 to 23 inches; dark reddish brown (5YR 3/3) silty clay loam, reddish brown (5YR 4/4) dry; weak coarse prismatic structure parting to moderate medium and fine subangular blocky; hard, friable, moderately sticky and moderately plastic; few roots; many very fine tubular pores; faint very dark brown (10YR 2/2) coatings on surface of peds; common medium and fine reddish brown (5YR 4/4) concretions; moderately acid (pH 5.8); gradual smooth boundary.

Bw1—23 to 37 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; weak coarse prismatic structure parting to moderate medium and fine subangular blocky; very hard, firm, moderately sticky and moderately plastic; few roots; many very fine tubular pores; faint very dark brown (10YR 2/2) coatings on surface of peds and in pores; common fine and medium black (10YR 2/1) and reddish brown (5YR 4/4) concretions; common fine distinct iron depletions that are dark gray (10YR 4/1) and grayish brown (10YR 5/2) when moist; moderately acid (pH 5.6); gradual smooth boundary.

Bw2—37 to 51 inches; dark brown (7.5YR 3/2) silty clay, brown (7.5YR 5/2) dry; moderate fine subangular blocky structure; very hard, firm, very sticky and very plastic; few roots; many fine and very fine tubular pores; prominent very dark brown (10YR 2/2) coatings in root channels and wormholes; common fine and medium black (10YR 2/1) and reddish brown (5YR 4/4) concretions; common medium and fine faint brown (10YR 5/3 and 7.5YR 5/2) and gray (10YR 5/1) iron depletions; moderately acid (pH 5.9); clear smooth boundary.

BC—51 to 65 inches; brown (7.5YR 4/2) silty clay, brown (7.5YR 5/4) dry; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; many very fine and fine tubular pores; many fine and medium black (10YR 2/1) and reddish brown (5YR 4/4) concretions; many coarse and medium distinct light yellowish brown (10YR 6/4), brown (10YR 5/3), and strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid (pH 5.9).

Typical Pedon Location

Map unit in which located: McAlpin silty clay loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 1,200 feet west and 2,100 feet north of the southeast corner of sec. 17, T. 9 S., R. 2 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—0 to 15 percent

Profile:
Thickness of mollic epipedon—20 inches or more
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—20 to 30 inches to iron depletions and masses of iron accumulation

A horizon:
Hue—10YR, 7.5YR, or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 15 percent gravel and 0 to 3 percent cobbles

AB horizon, where present:
Hue—10YR, 7.5YR, or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—silty clay loam
Content of clay—30 to 40 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 15 percent gravel and 0 to 3 percent cobbles

BA horizon, where present:
Hue—10YR, 7.5YR, or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—30 to 50 percent
Reaction—slightly acid to strongly acid
Content of rock fragments—0 to 15 percent gravel and 0 to 3 percent cobbles

Bw horizon:
Hue—10YR, 7.5YR, or 5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay or clay
Content of clay—40 to 50 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 15 percent gravel and 0 to 5 percent cobbles

BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—2 to 4 moist or dry
Texture—silty clay, clay, very gravelly clay, or gravelly silty clay
Content of clay—40 to 50 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—5 to 50 percent gravel and 0 to 10 percent cobbles

McBee Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
General landscape: Flood plains and terraces
Parent material: Silty and loamy alluvium
Slope: 0 to 3 percent
Elevation: 50 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Aquic Cumulic Haploxerolls

Typical Pedon

Ap—0 to 7 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate coarse medium and fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many fine and very fine irregular pores; common very fine roots; moderately acid (pH 6.0); abrupt smooth boundary.

A—7 to 10 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak coarse and medium prismatic structure and moderate medium and fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; few fine faint dark brown (10YR 3/3) masses of iron accumulation; slightly acid (pH 6.2); clear smooth boundary.

BA—10 to 22 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate medium prismatic structure and strong fine and very fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few roots; many very fine tubular pores; many worm cases; common fine faint dark brown (10YR 3/3) masses of iron accumulation; slightly acid (pH 6.2); gradual smooth boundary.

Bw—22 to 35 inches; dark brown (10YR 3/3) and very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) and brown (10YR 4/3) dry; weak medium prismatic structure and moderate coarse and medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine and few fine tubular pores; common fine and medium distinct grayish brown (10YR 5/2) iron depletions; slightly acid (pH 6.4); gradual smooth boundary.

BCg—35 to 42 inches; dark grayish brown (10YR 4/2) clay loam, grayish brown (10YR 5/2) dry; weak medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few roots; many very fine and few fine tubular pores; many fine and medium distinct grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid (pH 6.4); gradual smooth boundary.

Cg—42 to 65 inches; dark gray (10YR 4/1) clay loam, gray (10YR 5/1) dry; massive; many very fine and few fine pores; many medium and fine distinct dark brown (10YR 3/3) masses of iron accumulation; slightly acid (pH 6.4).

Typical Pedon Location

Map unit in which located: McBee silty clay loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 1,100 feet north and 200 feet west of the southeast corner of sec. 6, T. 6 S., R. 1 E.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent

Profile:
Thickness of mollic epipedon—20 to 40 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—20 to 30 inches to iron depletions and masses of iron accumulation

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—moderately acid or slightly acid

AB and BA horizons, where present:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam, clay loam, or silt loam
Content of clay—25 to 35 percent
Reaction—moderately acid or slightly acid

Bw horizon:
Hue—10YR or 7.5YR
Value—2 to 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—silty clay loam, clay loam, or silt loam
Content of clay—25 to 35 percent
Reaction—slightly acid or neutral

BC horizon, where present:
Hue—10YR or 2.5Y
Value—4 or 5 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—clay loam, silt loam, or silty clay loam
Content of clay—25 to 35 percent
Reaction—slightly acid or neutral
Content of rock fragments—0 to 15 percent gravel

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6 moist, 5 to 7 dry
Chroma—1 to 3 moist or dry
Texture—clay loam, silt loam, silty clay loam, silty clay, or gravelly loam
Content of clay—25 to 45 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 35 percent gravel

McDuff Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow

General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 50 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Taxonomic class: Fine, isotic, mesic Typic Haplohumults

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; clear smooth boundary.

A1—1 to 9 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine and fine tubular pores; few fine black (7.5YR 2/1) manganese masses and common fine dark brown (7.5YR 3/3) iron-manganese nodules that are spherical in matrix and very weakly cemented; 5 percent paragravel; very strongly acid (pH 4.8); clear smooth boundary.

A2—9 to 17 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and common medium roots; many very fine and fine tubular pores; few fine black (7.5YR 2/1) manganese masses and common fine dark brown (7.5YR 3/3) iron-manganese nodules that are spherical in matrix and very weakly cemented; 5 percent paragravel; very strongly acid (pH 4.8); clear smooth boundary.

Bt1—17 to 23 inches; dark brown (10YR 3/3) silty clay, brown (10YR 4/3) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; common distinct clay films on faces of peds and common faint clay films along surface of pores; few fine black (7.5YR 2/1) manganese masses; 10 percent paragravel; very strongly acid (pH 5.0); clear wavy boundary.

Bt2—23 to 30 inches; dark yellowish brown (10YR 4/4) silty clay, yellowish brown (10YR 5/4) dry; moderate medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine, fine, and medium and few coarse roots; common fine tubular pores; many distinct clay films on faces of peds and along surface of pores; few fine black (7.5YR 2/1) manganese masses; 10 percent paragravel; very strongly acid (pH 5.0); gradual wavy boundary.

BCt—30 to 37 inches; dark yellowish brown (10YR 4/6) silty clay, yellowish brown (10YR 5/6) dry; weak medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium and coarse roots; few fine tubular pores; many distinct clay films on faces of peds and common prominent clay films along surface of pores; few fine black (7.5YR 2/1) manganese masses; 10 percent paragravel; very strongly acid (pH 5.0); clear wavy boundary.

Cr—37 inches; weakly cemented sandstone; fractures 18 inches to less than 39 inches apart; many discontinuous distinct clay films coating pararock fragments.

Typical Pedon Location

Map unit in which located: McDuff silty clay loam in an area of Apt-McDuff complex, 30 to 50 percent slopes

Location in survey area: In an area of woodland about 2,310 feet south and 1,320 feet east of the northwest corner of sec. 20, T. 14 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 60 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—0 to 30 percent

Profile:
Thickness of umbric epipedon—more than 20 inches, including the upper part of the Bt horizon
Depth to bedrock—20 to 40 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam in upper part; silty clay loam or paragravelly silty clay loam in lower part
Content of clay—27 to 35 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 15 percent paragravel

Bt horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 to 6 moist or dry
Texture—silty clay, clay, or paragravelly clay
Content of clay—40 to 60 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 25 percent paragravel and 0 to 5 percent paracobbles

BCt horizon:
Value—4 or 5 moist, 5 or 6 dry
Chroma—4 to 6 moist or dry
Texture—silty clay, extremely paragravelly silty clay, or extremely paragravelly clay
Content of clay—40 to 60 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—10 to 50 percent paragravel and 0 to 5 percent paracobbles

Meda Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in solum and rapid in substratum
General landscape: Alluvial fans
Parent material: Loamy alluvium and colluvium derived from sedimentary and volcanic rock
Slope: 2 to 20 percent
Elevation: 400 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-loamy, isotic, mesic Humic Dystrudepts

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.

A—2 to 13 inches; very dark brown (10YR 2/2) gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine, fine, and medium and common coarse roots; many very fine and fine tubular pores; many medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; 20 percent gravel; strongly acid (pH 5.2); clear smooth boundary.

AB—13 to 18 inches; dark brown (10YR 3/3) gravelly loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium and common coarse roots; many very fine and fine tubular pores; many medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; 20 percent gravel; strongly acid (pH 5.4); clear smooth boundary.

Bw1—18 to 30 inches; dark yellowish brown (10YR 3/4) gravelly clay loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores; common medium very dark gray (10YR 3/1) iron-manganese nodules that are spherical in matrix and weakly cemented; 20 percent gravel; strongly acid (pH 5.4); gradual wavy boundary.

Bw2—30 to 34 inches; dark yellowish brown (10YR 4/4) gravelly clay loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 20 percent gravel; strongly acid (pH 5.4); clear wavy boundary.

2C—34 to 66 inches; yellowish brown (10YR 5/4) gravelly sandy loam, very pale brown (10YR 7/4) dry; massive; soft, very friable, nonsticky and nonplastic; few fine tubular pores; 30 percent gravel; moderately acid (pH 5.6).

Typical Pedon Location

Map unit in which located: Meda gravelly loam in an area of Meda-Treharne-Wasson complex, 2 to 20 percent slopes

Location in survey area: In an area of woodland about 1,320 feet south and 10 feet west of the northeast corner of sec. 3, T. 15 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent
Content of rock fragments—15 to 30 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Reaction—strongly acid or moderately acid
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—gravelly loam
Content of clay—18 to 25 percent
Content of rock fragments—15 to 30 percent gravel

AB horizon, where present:
Value—2 or 3 moist, 4 or 5 dry

Chroma—2 or 3 moist or dry
Texture—gravelly loam or clay loam
Content of clay—18 to 35 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 5 percent cobbles

Bw horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist, 2 to 4 dry
Texture—gravelly clay loam, clay loam, or gravelly loam
Content of clay—25 to 35 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 5 percent cobbles

2C horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 to 6 moist or dry
Texture—gravelly sandy loam, very gravelly sandy loam, or very gravelly loam
Content of clay—3 to 15 percent
Content of rock fragments—30 to 40 percent gravel and 0 to 15 percent cobbles

Mulkey Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Open grassland areas on mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 3 to 60 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Medial, ferrihydritic Pachic Fulvicryands

Typical Pedon

A1—0 to 10 inches; black (7.5YR 2.5/1) medial loam, very dark gray (7.5YR 3/1) dry; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine roots; many fine and very fine irregular pores; many fine and medium dark reddish brown (5YR 3/2 and 3/3) iron-manganese concretions that are spherical in matrix and very weakly cemented; 3 percent gravel and 3 percent cobbles; very strongly acid (pH 4.9); gradual smooth boundary.

A2—10 to 19 inches; very dark brown (7.5YR 2.5/3) gravelly medial loam, dark brown (7.5YR 3/2) dry; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine roots; many fine and very fine irregular pores; many fine and medium dark reddish brown (5YR 3/2 and 3/3) iron-manganese concretions that are spherical in matrix and very weakly cemented; 15 percent gravel and 5 percent cobbles; very strongly acid (pH 5.0); clear smooth boundary.

Bw—19 to 26 inches; dark brown (10YR 3/3) cobbly medial loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; few very fine roots; few fine irregular pores and very fine tubular pores; common very dark brown (10YR 2/2) and black (10YR 2/1) organic coatings on faces of peds; few fine dark reddish brown (5YR

3/3) iron-manganese concretions that are spherical in matrix and very weakly cemented; 20 percent cobbles and 5 percent stones; strongly acid (pH 5.3); abrupt irregular boundary.

R—26 inches; indurated coarse-grained intrusive igneous rock with a minor amount of soil material from Bw horizon in fractures; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Mulkey medial loam, 3 to 30 percent slopes

Location in survey area: In an area of grassland 150 yards east of the Marys Peak campground, about 200 feet northeast of the lone fir tree behind the natural amphitheater; about 1,500 feet north and 1,400 feet east of the southwest corner of sec. 21, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—10 to 20 percent (apparent, by field estimates)
Content of rock fragments—10 to 30 percent

Profile:
Thickness of umbric epipedon—more than 20 inches (may include all or part of Bw horizon)
Depth to bedrock—20 to 40 inches to an indurated, highly fractured lithic contact
Hue—10YR to 5YR
Consistence of solum—weakly smeary or moderately smeary

A1 horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—1 or 2 moist or dry
Texture—medial loam
Content of clay—10 to 20 percent
Content of rock fragments—0 to 15 percent gravel and 0 to 5 percent cobbles
Reaction—extremely acid or very strongly acid

A2 horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist or dry
Texture—medial loam or gravelly medial loam
Content of clay—10 to 20 percent
Content of rock fragments—5 to 25 percent gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones
Reaction—extremely acid or very strongly acid

Bw horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry to a depth of 20 inches and 3 or 4 moist or dry below this depth
Texture—gravelly medial loam, cobbly medial loam, or cobbly medial sandy loam
Content of clay—10 to 20 percent
Content of rock fragments—0 to 15 percent gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones
Reaction—very strongly acid or strongly acid

Murtip Series

Depth class: Deep
Drainage class: Well drained

Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 60 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Medial, ferrihydritic, frigid Alic Hapludands

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.
A—2 to 19 inches; dark brown (7.5YR 3/2) medial loam, brown (7.5YR 4/2) dry; weak very fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; moderately smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish brown (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 10 percent gravel; very strongly acid (pH 4.6); clear smooth boundary.
Bw1—19 to 31 inches; dark brown (7.5YR 3/4) medial loam, brown (7.5YR 4/4) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; common fine and medium dark reddish brown (5YR 3/2) and yellowish brown (5YR 5/6) iron-manganese concretions that are spherical in matrix and very weakly cemented; 5 percent gravel; 5 percent paragravel; very strongly acid (pH 4.8); gradual wavy boundary.
Bw2—31 to 45 inches; brown (7.5YR 4/4) medial loam, yellowish brown (7.5YR 5/4) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; 5 percent gravel; 5 percent paragravel; strongly acid (pH 5.2); gradual smooth boundary.
BC—45 to 56 inches; yellowish brown (7.5YR 5/4) gravelly medial loam, light brown (7.5YR 6/4) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine, medium, and coarse roots; many very fine and fine tubular pores; 15 percent gravel; 10 percent paragravel; strongly acid (pH 5.4); gradual wavy boundary.
Cr—56 inches; moderately cemented, moderately weathered coarse-grained intrusive igneous rock; fractures 18 inches to less than 39 inches apart.

Typical Pedon Location

Map unit in which located: Typical pedon of Murtip medial loam in an area of Murtip-Giveout-Laderly complex, 5 to 30 percent slopes
Location in survey area: In an area of woodland about 2,700 feet south and 650 feet west of the northeast corner of sec. 7, T. 15 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 30 percent (apparent, by field estimates)
Content of rock fragments—10 to 30 percent
Content of pararock fragments—0 to 20 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—40 to 60 inches to a moderately cemented, partially weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—7.5YR or 10YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist or dry
Texture—medial loam
Content of clay—12 to 20 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 5 percent paragravel

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—gravelly medial loam, gravelly medial clay loam, or medial loam
Content of clay—18 to 30 percent clay
Content of rock fragments—0 to 30 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 10 percent paragravel and 0 to 10 percent paracobbles

BC horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—gravelly medial loam or gravelly medial clay loam
Content of clay—18 to 30 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 15 percent paragravel and 0 to 10 percent paracobbles

Nekia Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Loamy colluvium and residuum derived from basalt
Slope: 12 to 30 percent
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, active, mesic Xeric Haplohumults

Typical Pedon

Ap—0 to 9 inches; dark reddish brown (5YR 2/2) silty clay loam, reddish brown (5YR 4/3) dry; moderate medium and fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many roots; many fine irregular pores; moderately acid (pH 5.6); abrupt wavy boundary.
BA—9 to 18 inches; dark reddish brown (5YR 3/3) clay, reddish brown (5YR 4/4) dry; moderate medium prismatic structure, moderate medium subangular blocky, and

weak very fine granular; slightly hard, friable, moderately sticky and moderately plastic; common roots; many very fine tubular pores; strongly acid (pH 5.5); clear smooth boundary.

Bt1—18 to 24 inches; dark reddish brown (5YR 3/3) clay, reddish brown (5YR 4/4) dry; weak very coarse prismatic structure and moderate fine and very fine subangular blocky; hard, friable, moderately sticky and moderately plastic; common roots; many very fine tubular pores; few faint clay films on faces of peds and in pores; strongly acid (pH 5.4); clear smooth boundary.

Bt2—24 to 36 inches; dark reddish brown (5YR 3/4) clay, yellowish red (5YR 4/6) dry; weak coarse prismatic structure and moderate fine and very fine subangular blocky; hard, firm, very sticky and very plastic; few roots; many very fine tubular pores; many distinct clay films on faces of peds and in pores; very few faint black coatings on faces of peds; very few fine black concretions; many coarse sand-sized fragments; strongly acid (pH 5.3); clear wavy boundary.

R—36 inches; indurated, partially fractured bedrock; some fractures filled with reddish brown (5YR 4/4) clay, reddish brown (5YR 5/3) dry; few large roots in fractures; few prominent clay films on surfaces of rock; variegated color because of the weathered rock fragments; many medium black coatings on surface of rock fragments; 90 percent fractured hard rock; strongly acid (pH 5.3).

Typical Pedon Location

Marion County, Oregon; in a cultivated area about 400 feet east and 1,700 feet south of the northwest corner of sec. 17, T. 8 S., R. 1 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 50 percent
Content of rock fragments—0 to 35 percent

Profile:
Depth to bedrock—20 to 40 inches to an indurated lithic contact
Base saturation—less than 35 percent throughout lower part of argillic horizon

Ap horizon:
Hue—5YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 10 percent gravel and 0 to 3 percent cobbles

BA and AB horizons, where present:
Hue—5YR or 7.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 or 4 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 10 percent gravel and 0 to 3 percent cobbles

Bt horizon:
Hue—5YR or 2.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—clay, silty clay, cobbly clay, or gravelly silty clay

Content of clay—40 to 50 percent
Reaction—very strongly acid to moderately acid
Content of rock fragments—0 to 20 percent gravel and 0 to 20 percent cobbles

Nekoma Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Flood plains
Parent material: Recent loamy alluvium derived from sandstone and siltstone
Slope: 0 to 3 percent
Elevation: 200 to 750 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Fluventic Humic Dystrudepts

Typical Pedon

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and fine irregular pores; moderately acid (pH 6.0); abrupt smooth boundary.
A—5 to 14 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.
Bw—14 to 26 inches; dark yellowish brown (10YR 4/4) fine sandy loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine and medium roots; many very fine and fine irregular pores; moderately acid (pH 5.6); gradual smooth boundary.
C1—26 to 48 inches; light yellowish brown (10YR 6/4), stratified fine sandy loam to loamy fine sand, very pale brown (10YR 7/3) dry; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine and fine irregular pores; strongly acid (pH 5.4); clear wavy boundary.
C2—48 to 60 inches; brownish yellow (10YR 6/6), stratified loamy fine sand to fine sandy loam, very pale brown (10YR 7/4) dry; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine and fine irregular pores; few fine distinct gray (10YR 5/1) iron depletions and common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid (pH 5.2).

Typical Pedon Location

Map unit in which located: Nekoma silt loam in an area of Nekoma-Fluvaquents complex, 0 to 3 percent slopes
Location in survey area: In an area of pasture about 2,300 feet north and 100 feet east of the southwest corner of sec. 20, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—5 to 15 percent
Content of sand—more than 15 percent fine sand or coarser

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—iron depletions with chroma of 2 or less, masses of iron accumulation with chroma of more than 2 below a depth of 40 inches
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—5 to 20 percent
Reaction—strongly acid or moderately acid

Bw horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—fine sandy loam, silt loam, or loam
Content of clay—5 to 15 percent
Reaction—very strongly acid to moderately acid

C horizon:
Value—4 to 6 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—stratified loamy fine sand to very fine sandy loam
Content of clay—5 to 15 percent
Reaction—very strongly acid to moderately acid

Newanna Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 90 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Medial-skeletal, ferrihydritic Typic Fulvicryands

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.
A—2 to 13 inches; very dark grayish brown (10YR 3/2) very cobbly medial loam, brown (10YR 4/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and few medium and coarse roots; many very fine and fine irregular pores; 30 percent gravel and 20 percent cobbles; very strongly acid (pH 4.6); clear smooth boundary.
Bw1—13 to 22 inches; dark yellowish brown (10YR 3/4) very cobbly medial loam, yellowish brown (10YR 5/4) dry; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; common very fine and

fine and few medium and coarse roots; many very fine and fine tubular pores; 20 percent gravel, 30 percent cobbles, and 5 percent stones; very strongly acid (pH 4.6); clear smooth boundary.

Bw2—22 to 33 inches; dark yellowish brown (10YR 4/4) extremely cobbly medial loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; weakly smeary; few fine, medium, and coarse roots; common fine tubular pores; 25 percent gravel, 30 percent cobbles, and 10 percent stones; very strongly acid (pH 4.8); abrupt wavy boundary.

R—33 inches; indurated, highly fractured coarse-grained intrusive igneous rock; fractures 18 inches to less than 39 inches apart; few coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Newanna very cobbly medial loam in an area of Sevencedars-Newanna complex, 60 to 90 percent slopes (fig. 97)

Location in survey area: In an area of woodland about 1,400 feet north and 2,490 feet east of the southwest corner of sec. 21, T. 12 S., R. 7 W.

Figure 97.—Typical profile of Newanna very cobbly medial loam in an area of Sevencedars-Newanna complex, 60 to 90 percent slopes.

Range in Characteristics

Particle-size control section:
Content of clay—10 to 25 percent (apparent, by field estimates)
Content of rock fragments—40 to 80 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches to an indurated, highly fractured lithic contact
Hue—7.5YR or 10YR
Reaction—very strongly acid or strongly acid
Consistence of solum—moderately smeary or weakly smeary

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—very cobbly medial loam
Content of clay—10 to 25 percent
Content of rock fragments—15 to 30 percent gravel and 15 to 25 percent cobbles

Bw horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—very cobbly medial loam, extremely cobbly medial loam, or very gravelly medial loam
Content of clay—10 to 25 percent
Content of rock fragments—20 to 45 percent gravel, 10 to 30 percent cobbles, and 0 to 10 percent stones

Newberg Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
General landscape: Flood plains
Parent material: Loamy alluvium and stratified sandy alluvium
Slope: 0 to 3 percent
Elevation: 30 to 1,000 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Fluventic Haploxerolls

Typical Pedon

Ap—0 to 7 inches; dark brown (10YR 3/3) fine sandy loam, brown (10YR 4/3) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few fine roots; many irregular pores; moderately acid (pH 6.0); clear smooth boundary.

AC—7 to 19 inches; dark brown (10YR 3/3) fine sandy loam, dark yellowish brown (10YR 4/4) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine roots; many irregular pores; moderately acid (pH 5.8); clear smooth boundary.

C1—19 to 28 inches; brown (10YR 4/3) coarse sandy loam, pale brown (10YR 6/3) dry; massive; soft, friable, nonsticky and nonplastic; few roots; many irregular pores; moderately acid (pH 5.8); clear smooth boundary.

C2—28 to 48 inches; dark grayish brown (10YR 4/2), stratified loamy fine sand to fine sandy loam, pale brown (10YR 6/3) and light brownish gray (10YR 6/2) dry; single grain; loose, nonsticky and nonplastic; many irregular pores; moderately acid (pH 5.8); gradual smooth boundary.

C3—48 to 64 inches; dark grayish brown (10YR 4/2), stratified fine sand to fine sandy loam, light brownish gray (10YR 6/2) dry; single grain; loose, nonsticky and nonplastic; many irregular pores; moderately acid (pH 6.0).

Typical Pedon Location

Map unit in which located: Newberg fine sandy loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 1,200 feet north and 1,200 feet west of the southeast corner of sec. 4, T. 10 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—5 to 20 percent
Content of rock fragments—0 to 15 percent

Profile:
Thickness of mollic epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches

A horizon:
Hue—10YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—fine sandy loam or loam
Content of clay—2 to 20 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 15 percent gravel

AC horizon:
Hue—10YR or 7.5YR
Value—2 to 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—fine sandy loam
Content of clay—7 to 20 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 15 percent gravel

C1 horizon:
Hue—10YR or 7.5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—fine sandy loam, sandy loam, or coarse sandy loam
Content of clay—2 to 20 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 15 percent gravel and 0 to 10 percent cobbles

C2 and C3 horizons:
Hue—10YR or 7.5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—stratified fine sand to fine sandy loam

Content of clay—2 to 20 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 15 percent gravel and 0 to 10 percent cobbles

Oldblue Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Ancient landslide deposits on mountains
Parent material: Recent loamy colluvium over older loamy colluvium derived from sandstone and siltstone
Slope: 5 to 60 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Fine-loamy, isotic, frigid Andic Dystrudepts

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.

A1—2 to 6 inches; black (10YR 2/1) gravelly medial loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; strongly smeary; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; 10 percent fire-formed concretions 2 to 5 millimeters in diameter; 20 percent gravel and 2 percent cobbles; 20 percent paragravel and 2 percent paracobbles; very strongly acid (pH 4.7); clear smooth boundary.

A2—6 to 12 inches; very dark brown (10YR 2/2) very paragravelly medial loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; common very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; 10 percent gravel and 2 percent cobbles; 20 percent paragravel and 5 percent paracobbles; very strongly acid (pH 4.8); clear smooth boundary.

A3—12 to 21 inches; very dark grayish brown (10YR 3/2) paragravelly medial loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; few very fine, fine, medium, and coarse roots; many very fine and fine tubular pores; 10 percent gravel and 2 percent cobbles; 15 percent paragravel and 3 percent paracobbles; very strongly acid (pH 4.9); abrupt smooth boundary.

2Bw1—21 to 38 inches; yellowish brown (10YR 5/4) extremely paragravelly clay loam, very pale brown (10YR 7/4) dry; moderate medium and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; common fine and medium irregular pores; organic stains in root channels; 40 percent paragravel and 20 percent paracobbles; very strongly acid (pH 5.0); gradual wavy boundary.

2Bw2—38 to 75 inches; yellowish brown (10YR 5/6) extremely paracobbly clay loam, very pale brown (10YR 7/4) dry; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; common fine and medium irregular pores; organic stains in root channels; 40 percent paragravel and 35 percent paracobbles; very strongly acid (pH 4.9); gradual wavy boundary.

2Cr—75 inches; weakly cemented, highly weathered sandstone and siltstone; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Oldblue gravelly medial loam in an area of Oldblue-Burntwoods complex, 5 to 30 percent slopes

Location in survey area: In an area of woodland about 2,550 feet north and 2,010 feet west of the southeast corner of sec. 22, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:

Content of clay—12 to 25 percent in upper part and 20 to 30 percent in lower part (apparent, by field estimates)

Content of rock fragments—0 to 25 percent

Content of pararock fragments—35 to 70 percent

Profile:

Thickness of umbric epipedon—15 to 25 inches

Depth to bedrock—60 to 89 inches or more to a weakly cemented, highly weathered paralithic contact

Reaction—very strongly acid or strongly acid

Hue—10YR or 7.5YR

Consistence of upper 15 to 25 inches of solum—strongly smeary or moderately smeary

A1 and A2 horizons:

Value—2 or 3 moist, 3 or 4 dry

Chroma—1 or 2 moist or dry

Texture—gravelly medial loam or very paragravelly medial loam

Content of clay—12 to 20 percent

Content of rock fragments—10 to 25 percent gravel and 0 to 3 percent cobbles

Content of pararock fragments—10 to 20 percent paragravel and 0 to 5 percent paracobbles

A3 horizon:

Value—3 moist, 4 or 5 dry

Chroma—2 or 3 moist or dry

Texture—paragravelly medial loam or very paragravelly medial loam

Content of clay—15 to 25 percent

Content of rock fragments—5 to 10 percent gravel and 0 to 3 percent cobbles

Content of pararock fragments—15 to 30 percent paragravel and 0 to 5 percent paracobbles

2Bw horizon:

Value—4 or 5 moist, 6 to 8 dry

Chroma—2 to 4 moist or dry

Texture—extremely paragravelly clay loam, very paragravelly loam, or extremely paracobbly clay loam

Content of clay—20 to 30 percent

Content of pararock fragments—35 to 50 percent paragravel and 15 to 40 percent paracobbles

Panther Series

Depth class: Deep

Drainage class: Poorly drained

Permeability: Very slow
General landscape: Hills
Parent material: Clayey colluvium over clayey residuum derived from sandstone and siltstone
Slope: 2 to 12 percent
Elevation: 300 to 1,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Very-fine, smectitic, mesic Vertic Epiaquolls

Typical Pedon

Ap—0 to 8 inches; black (10YR 2/1) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate and strong very fine and fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many fine roots; many very fine irregular and tubular pores; 2 percent fine shale paragravel; moderately acid (pH 5.7); abrupt smooth boundary.

A—8 to 14 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak medium prismatic structure parting to strong medium subangular blocky; hard, firm, moderately sticky and moderately plastic; many fine roots; many very fine irregular pores; few fine distinct dark yellowish brown (10YR 3/4) masses of iron accumulation; moderately acid (pH 5.7); abrupt smooth boundary.

2Bgss1—14 to 24 inches; dark grayish brown (2.5Y 4/2) clay, light brownish gray (2.5Y 6/2) dry; weak very coarse prismatic structure parting to weak coarse subangular blocky; very hard, very firm, very sticky and very plastic; common fine roots; many very fine tubular pores; many fine distinct gray (5Y 5/1) iron depletions and many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; slickensides and pressure faces or films on faces of prisms; 2 percent fine siltstone paragravel; very strongly acid (pH 4.8); gradual smooth boundary.

2Bgss2—24 to 36 inches; olive brown (2.5Y 4/3) clay, light brownish gray (2.5Y 6/2) dry; weak very coarse prismatic structure; very hard, very firm, very sticky and very plastic; few fine roots; common very fine tubular pores; many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; some slickensides and pressure faces or films on faces of prisms; 2 percent fine siltstone paragravel; very strongly acid (pH 4.5); gradual smooth boundary.

2Cg—36 to 44 inches; brown (10YR 5/3), yellowish brown (10YR 5/8), and grayish brown (10YR 5/2) extremely paragravelly clay; massive; very hard, very firm, very sticky and very plastic; few very fine pores; brown (10YR 5/3) and yellowish brown (10YR 5/6) iron accumulations and grayish brown (10YR 5/2) iron depletions; 45 percent strongly weathered sandstone and siltstone paragravel and 15 percent paracobbles; extremely acid (pH 4.2); clear smooth boundary.

2Cr—44 inches; light brownish gray (2.5Y 6/2), yellowish brown (10YR 5/6), and brownish yellow (10YR 6/6), moderately cemented, partially weathered siltstone; very firm; few thin brown (7.5YR 4/4) films on surface of some fractures.

Typical Pedon Location

Map unit in which located: Panther silty clay loam, 2 to 12 percent slopes
Location in survey area: In an area of pasture about 1,200 feet north and 2,000 feet east of the southwest corner of sec. 36, T. 3 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—60 to 70 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—1 to 20 percent

Profile:
Thickness of mollic epipedon—10 to 24 inches
Depth to bedrock—40 to 60 inches to moderately cemented siltstone
Depth to redoximorphic features—0 to 15 inches to masses of iron accumulation

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 2 percent gravel and 0 to 3 percent cobbles

2Bgss horizon:
Hue—5Y, 2.5Y, or 10YR
Value—3 to 5 moist, 4 to 6 dry
Chroma—1 to 3 moist or dry
Texture—clay or paragravelly clay
Content of clay—60 to 70 percent
Reaction—very strongly acid to slightly acid
Content of rock fragments—0 to 2 percent gravel and 0 to 3 percent cobbles
Content of pararock fragments—1 to 20 percent paragravel

2Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 8 moist or dry
Chroma—1 to 4 moist or dry
Texture—clay, paragravelly clay, or extremely paragravelly clay
Content of clay—55 to 70 percent
Reaction—extremely acid to slightly acid
Content of pararock fragments—0 to 50 percent paragravel and 0 to 25 percent paracobbles

Peavine Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from sandstone and siltstone
Slope: 3 to 60 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Taxonomic class: Fine, mixed, active, mesic Typic Haplohumults

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 4 inches; dark brown (7.5YR 3/3) paragravelly silty clay loam, brown (7.5YR 4/3) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 5 percent gravel; 20 percent paragravel; strongly acid (pH 5.5); abrupt smooth boundary.

BAt—4 to 17 inches; dark brown (7.5YR 3/4) silty clay loam, brown (7.5YR 4/4) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few fine and medium tubular pores; few faint clay films along surface of pores and in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 10 percent paragravel; strongly acid (pH 5.3); clear smooth boundary.

Bt1—17 to 23 inches; reddish brown (5YR 4/4) paragravelly silty clay, yellowish red (5YR 4/6) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; common fine and few medium tubular pores; common distinct clay films on faces of peds, along surface of pores, and in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 20 percent paragravel; very strongly acid (pH 4.8); clear smooth boundary.

Bt2—23 to 31 inches; reddish brown (5YR 4/4) very paragravelly silty clay, yellowish red (5YR 5/6) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium and coarse roots; common fine and few medium tubular pores; common distinct clay films on faces of peds, along surface of pores, and in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 40 percent paragravel and 10 percent paracobbles; very strongly acid (pH 4.8); gradual wavy boundary.

BCt—31 to 36 inches; reddish brown (5YR 4/4) very paragravelly silty clay, yellowish red (5YR 5/6) dry; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few coarse roots; common fine and few medium tubular pores; common distinct clay films on faces of peds, along surface of pores, and in root channels; common fine black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and moderately cemented; 40 percent paragravel and 10 percent paracobbles; very strongly acid (pH 4.8); clear wavy boundary.

Crt—36 inches; weakly cemented sandstone; fractures 18 inches to less than 39 inches apart; common distinct clay films coating pararock fragments.

Typical Pedon Location

Map unit in which located: Peavine paragravelly silty clay loam in an area of Honeygrove-Peavine complex, 3 to 30 percent slopes (fig. 98)

Location in survey area: In an area of woodland about 1,320 feet south and 1,320 feet west of the northeast corner of sec. 1, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 60 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—10 to 65 percent

Figure 98.—Typical profile of Peavine paragravelly silty clay loam in an area of Honeygrove-Peavine complex, 3 to 30 percent slopes.

Profile:
Depth to bedrock—20 to 40 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid

A horizon:
Hue—7.5YR or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 to 4 moist or dry
Texture—paragravelly silty clay loam or silty clay loam
Content of clay—27 to 35 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 20 percent paragravel
Consistence in areas derived from basalt—weakly smeary or moderately smeary

AB and BAt horizons, where present:
Hue—7.5YR or 5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—silty clay loam, silty clay, or paragravelly silty clay
Content of clay—27 to 50 percent
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 20 percent paragravel

Bt horizon:
Hue—5YR or 2.5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—paragravelly silty clay, very paragravelly silty clay, or clay
Content of clay—40 to 60 percent
Content of rock fragments—0 to 5 percent gravel
Contentof pararock fragments—0 to 50 percent paragravel and 0 to 10 percent paracobbles

BCt horizon:
Hue—5YR or 2.5YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—very paragravelly silty clay, clay, or very paragravelly clay
Content of clay—40 to 60 percent
Content of rock fragments—0 to 10 percent gravel
Content of pararock fragments—0 to 50 percent paragravel and 0 to 10 percent paracobbles

Crt horizon:
Cementation of paralithic bedrock in areas derived from basalt—moderate

Pengra Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
General landscape: Hills
Parent material: Silty and clayey alluvium
Slope: 2 to 12 percent
Elevation: 250 to 1,000 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty over clayey, mixed, superactive, mesic Vertic Epiaquolls

Typical Pedon

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (2.5Y 5/2) dry; moderate fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots; many irregular pores; moderately acid (pH 5.8); abrupt smooth boundary.

BA—6 to 13 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (2.5Y 5/2) dry; weak coarse subangular blocky structure parting to moderate fine subangular blocky; hard, friable, slightly sticky and moderately plastic; common very fine roots; many very fine tubular pores; few fine distinct yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation; moderately acid (pH 5.6); clear wavy boundary.

Bw—13 to 21 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; moderate coarse prismatic structure parting to moderate fine subangular blocky; hard, firm, moderately sticky and moderately plastic; common very fine roots; many very fine pores; many distinct yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation; moderately acid (pH 5.8); abrupt wavy boundary.

2C1—21 to 36 inches; very dark grayish brown (2.5Y 3/2) clay, dark gray (5Y 4/1) dry; massive; extremely hard, very firm, very sticky and very plastic; few roots; few very fine tubular pores; common pressure faces; slightly acid (pH 6.4); gradual wavy boundary.

2C2—36 to 60 inches; dark grayish brown (2.5Y 4/2) clay; massive; extremely hard, very firm, very sticky and very plastic; few very fine tubular pores; common pressure faces; neutral (pH 6.6).

Typical Pedon Location

Lane County, Oregon; in a cultivated area about 400 feet east and 1,400 feet south of the northwest corner of sec. 31, T. 17 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—27 to 35 percent in upper part and 60 to 70 percent in lower part
Content of rock fragments—0 to 15 percent in lower part

Profile:
Thickness of mollic epipedon—10 to 24 inches
Depth to bedrock—more than 60 inches
Depth to abrupt textural change—14 to 30 inches
Depth to redoximorphic features—12 inches or less to masses of iron accumulation

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—20 to 27 percent
Reaction—moderately acid or slightly acid

BA and Bw horizons:
Hue—5Y, 2.5Y, or 10YR
Value—3 to 5 moist, 4 to 6 dry
Chroma—2 or 3 moist or dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—strongly acid to slightly acid

2C horizon:
Hue—5Y, 2.5Y, or 10YR
Value—3 to 5 moist, 4 to 6 dry
Chroma—1 to 4 moist or dry
Texture—clay or gravelly clay
Content of clay—60 to 70 percent
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent gravel and 0 to 5 percent cobbles

Philomath Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
General landscape: Hills
Parent material: Clayey colluvium derived from basalt
Slope: 3 to 12 percent

Elevation: 300 to 1,200 feet
Mean annual precipitation: 45 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Clayey, smectitic, mesic, shallow Vertic Haploxerolls

Typical Pedon

A1—0 to 4 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; strong medium granular structure; moderately hard, very friable, moderately sticky and moderately plastic; many very fine and few fine roots; many very fine tubular pores; moderately acid (pH 5.8); abrupt smooth boundary.

A2—4 to 8 inches; very dark brown (10YR 2/2) silty clay, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; moderately hard, friable, moderately sticky and moderately plastic; many very fine and few fine roots; many very fine and common fine tubular pores; 1 percent gravel; moderately acid (pH 5.9); gradual wavy boundary.

A3—8 to 15 inches; very dark brown (10YR 2/2) silty clay, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; moderately hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; many very fine and common fine tubular pores; 5 percent gravel and 5 percent cobbles; 1 percent paragravel; moderately acid (pH 6.2); abrupt wavy boundary.

2Cr—15 inches; dark yellowish brown (10YR 4/6), moderately cemented, partially weathered basalt.

Typical Pedon Location

Map unit in which located: Philomath silty clay loam, 3 to 12 percent slopes
Location in survey area: In an area used as homesites about 2,600 feet south and 1,100 feet east of the northwest corner of sec. 22, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 60 percent
Content of rock fragments—0 to 35 percent
Content of pararock fragments—0 to 10 percent

Profile:
Thickness of mollic epipedon—12 to 20 inches
Depth to bedrock—12 to 20 inches to moderately cemented basalt

A1 horizon:
Hue—10YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam
Content of clay—30 to 40 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 15 percent gravel and 0 to 5 percent cobbles

A2 horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam, silty clay, clay, cobbly silty clay, or cobbly clay
Content of clay—35 to 55 percent

Reaction—moderately acid to neutral
Content of rock fragments—0 to 15 percent gravel and 0 to 20 percent cobbles
Content of pararock fragments—0 to 5 percent paragravel

A3 horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—1 or 2 moist or dry
Texture—silty clay, clay, cobbly silty clay, or cobbly clay
Content of clay—40 to 60 percent
Reaction—moderately acid to neutral
Content of rock fragments—0 to 20 percent gravel and 0 to 20 percent cobbles
Content of pararock fragments—0 to 10 percent paragravel

Pilchuck Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
General landscape: Flood plains
Parent material: Sandy and gravelly alluvium derived from igneous rock
Slope: 0 to 3 percent
Elevation: 120 to 300 feet
Mean annual precipitation: 40 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Mixed, mesic Dystric Xeropsamments

Typical Pedon

A—0 to 7 inches; dark brown (10YR 3.3) fine sandy loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; loose; few fine roots; few fine pores; slightly acid (pH 6.4); clear wavy boundary.

C1—7 to 45 inches; dark brown (10YR 3/3), stratified sand to loamy fine sand, brown (10YR 5/3) dry; massive; loose; few fine roots; few fine pores; pockets and lenses of fine sand; slightly acid (pH 6.4); abrupt wavy boundary.

C2—45 to 62 inches; very dark grayish brown (10YR 3/2), stratified sand to very cobbly loamy fine sand, grayish brown (10YR 5/2) dry; single grain; loose; few fine pores; neutral (pH 6.6).

Typical Pedon Location

Map unit in which located: Pilchuck fine sandy loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 300 feet west and 200 feet north of the southeast corner of sec. 6, T. 9 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—0 to 10 percent
Content of rock fragments—0 to 35 percent

Profile:
Depth to bedrock—more than 60 inches
Depth to stratified layer—5 to 10 inches
Reaction—moderately acid to neutral
Hue—10YR or 2.5Y

A horizon:
Value—2 to 5 moist, 3 to 6 dry
Chroma—1 to 3 moist or dry
Texture—fine sandy loam
Content of clay—5 to 15 percent
Content of rock fragments—0 to 15 percent gravel

C1 horizon:
Value—2 to 5 moist, 3 to 6 dry
Chroma—1 to 3 moist or dry
Texture—stratified sand to loamy fine sand
Content of clay—0 to 10 percent
Content of rock fragments—0 to 15 percent gravel

C2 horizon:
Value—2 to 5 moist, 3 to 6 dry
Chroma—1 to 3 moist or dry
Texture—stratified sand to very cobbly loamy fine sand
Content of clay—0 to 10 percent
Content of rock fragments—0 to 35 percent gravel and 0 to 40 percent cobbles

Preacher Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 5 to 90 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Fine-loamy, isotic, mesic Andic Dystrudepts

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt wavy boundary.

A1—2 to 12 inches; very dark brown (10YR 2/2) medial loam, brown (10YR 4/3) dry; moderate fine and medium granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium roots; many very fine and fine irregular pores; common fine black (7.5YR 2/1) and dark brown (7.5YR 3/2) iron-manganese nodules that are spherical in matrix and weakly cemented; 10 percent gravel; 3 percent paragravel; very strongly acid (pH 4.8); clear wavy boundary.

A2—12 to 18 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; many very fine and fine tubular pores; few fine black (7.5YR 2/1) and dark brown (7.5YR 3/2) iron-manganese nodules that are spherical in matrix and weakly cemented; 10 percent gravel; 3 percent paragravel; very strongly acid (pH 4.8); clear wavy boundary.

Bw1—18 to 29 inches; dark yellowish brown (10YR 4/4) clay loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; weakly smeary; common very

fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 10 percent gravel; 3 percent paragravel; very strongly acid (pH 5.0); gradual wavy boundary.

Bw2—29 to 44 inches; dark yellowish brown (10YR 4/4) clay loam, light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 10 percent gravel; 3 percent paragravel; very strongly acid (pH 5.0); clear wavy boundary.

C—44 to 53 inches; yellowish brown (10YR 5/4) loam, very pale brown (10YR 7/4) dry; massive; slightly hard, firm, slightly sticky and slightly plastic; few fine, medium, and coarse roots; few very fine and fine tubular pores; 10 percent gravel; 3 percent paragravel; very strongly acid (pH 5.0); abrupt wavy boundary.

Cr—53 inches; weakly cemented, highly weathered sandstone; fractures 18 inches to less than 39 inches apart; few coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Preacher medial loam in an area of Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes

Location in survey area: In an area of woodland about 800 feet south and 2,150 feet west of the northeast corner of sec. 2, T. 15 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 35 percent
Content of rock fragments—5 to 10 percent
Content of pararock fragments—0 to 5 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—40 to 60 inches to a weakly cemented, highly weathered paralithic contact
Reaction—very strongly acid or strongly acid
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—medial loam in upper part and loam in lower part
Content of clay—15 to 25 percent
Content of rock fragments—5 to 10 percent gravel and 0 to 2 percent cobbles
Content of pararock fragments—0 to 5 percent paragravel
Consistence—weakly smeary or moderately smeary

Bw horizon:
Value—3 to 5 moist, 4 to 6 dry
Chroma—3 to 6 moist or dry
Texture—loam or clay loam
Content of clay—20 to 35 percent
Content of rock fragments—5 to 10 percent gravel and 0 to 2 percent cobbles
Content of pararock fragments—0 to 5 percent paragravel

C horizon:
Value—4 or 5 moist, 6 or 7 dry
Chroma—4 to 6 moist or dry
Texture—loam, clay loam, or sandy loam
Content of clay—10 to 30 percent

Content of rock fragments—5 to 10 percent gravel and 0 to 2 percent cobbles
Content of pararock fragments—0 to 5 percent paragravel

Price Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium derived from basalt
Slope: 30 to 90 percent
Elevation: 240 to 2,200 feet
Mean annual precipitation: 50 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Typic Haploxerepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 8 inches; dark reddish brown (5YR 3/3) silty clay loam, reddish brown (5YR 4/3) dry; moderate fine and very fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many fine tubular pores; 10 percent gravel and 2 percent cobbles; moderately acid (pH 5.6); clear smooth boundary.

BA—8 to 17 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; many fine tubular pores; 10 percent gravel and 2 percent cobbles; strongly acid (pH 5.4); clear smooth boundary.

Bw1—17 to 31 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and few medium and coarse roots; many very fine tubular pores; 10 percent gravel and 3 percent cobbles; strongly acid (pH 5.4); gradual smooth boundary.

Bw2—31 to 54 inches; dark reddish brown (5YR 3/4) silty clay, reddish brown (5YR 4/4) dry; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; few medium and coarse roots; common very fine and fine tubular pores; 10 percent gravel and 3 percent cobbles; strongly acid (pH 5.2); gradual wavy boundary.

BC—54 to 86 inches; reddish brown (5YR 4/4) gravelly silty clay loam, reddish brown (5YR 5/4) dry; weak fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few coarse roots; common very fine tubular pores; 20 percent gravel and 10 percent cobbles; common black manganese stains on faces of pores and coating rock fragments; strongly acid (pH 5.2); abrupt wavy boundary.

2R—86 inches; partially weathered, highly fractured basalt; tongues of soil material from BC horizon that are dark reddish brown (5YR 3/4), yellowish red (5YR 4/6) dry, in fractures; many black manganese stains and yellowish red (5YR 5/6) clay films on rock fragments.

Typical Pedon Location

Map unit in which located: Price silty clay loam in an area of MacDunn-Price-Ritner complex, 60 to 90 percent slopes

Location in survey area: In an area of woodland about 1,400 feet south and 2,310 feet west of the northeast corner of sec. 18, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—15 to 30 percent

Profile:
Thickness of ochric epipedon—17 inches
Depth to bedrock—more than 60 inches
Reaction—moderately acid or strongly acid

A horizon:
Hue—5YR or 7.5YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist, 3 or 4 dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Content of rock fragments—10 to 15 percent gravel and 0 to 10 percent cobbles and stones; as much as 5 percent of surface covered with cobbles and stones in some areas

BA and Bw horizons:
Hue—5YR or 2.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—gravelly silty clay, cobbly silty clay loam, silty clay, or clay
Content of clay—35 to 50 percent
Content of rock fragments—10 to 25 percent gravel and 0 to 10 percent cobbles

BC horizon:
Hue—5YR or 2.5YR
Value—4 or 5 moist, 5 or 6 dry
Chroma—4 to 6 moist or dry
Texture—cobbly clay, cobbly silty clay, or gravelly silty clay loam
Content of clay—35 to 50 percent
Content of rock fragments—typically 10 to 25 percent gravel and 5 to 10 percent cobbles, but total content may be 40 to 75 percent below a depth of 50 inches

Pyburn Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
General landscape: High stream terraces
Parent material: Old mixed clayey alluvium derived from volcanic and sedimentary rock
Slope: 0 to 8 percent
Elevation: 500 to 1,000 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine, isotic, mesic Typic Umbraquults

Typical Pedon

Ac—0 to 13 inches; black (10YR 2/1) silty clay, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine and common medium roots; common fine tubular pores; common medium black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and weakly cemented; few medium distinct dark brown (7.5YR 3/2) and brown (7.5YR 5/2) iron depletions; very strongly acid (pH 4.6); clear smooth boundary.

BAc—13 to 20 inches; very dark gray (10YR 3/1) silty clay, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; common fine tubular pores; common medium black (7.5YR 2.5/1) iron-manganese nodules that are spherical in matrix and weakly cemented; common medium distinct dark brown (7.5YR 3/2) and brown (7.5YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 4/6 and 5/6) masses of iron accumulation; very strongly acid (pH 5.0); gradual wavy boundary.

Bt—20 to 36 inches; dark gray (10YR 4/1) clay, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few fine and medium roots; few fine tubular pores; few pressure faces; common distinct clay films on faces of peds and on surfaces along pores; many medium prominent strong brown (7.5YR 4/6 and 5/6) masses of iron accumulation; moderately acid (pH 5.6); clear wavy boundary.

BCss—36 to 48 inches; brown (10YR 4/3) clay, light olive brown (2.5Y 5/3) dry; weak medium and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few fine tubular pores; few faint slickensides; many medium prominent strong brown (7.5YR 5/6) and reddish yellow (7.5YR 6/6) masses of iron accumulation; moderately acid (pH 5.6); clear wavy boundary.

C—48 to 66 inches; grayish brown (2.5Y 5/2) clay loam, light brownish gray (2.5Y 6/2) dry; massive; very hard, firm, moderately sticky and moderately plastic; few fine tubular pores; common medium distinct dark gray (10YR 4/1) iron depletions and many medium and coarse prominent strong brown (7.5YR 5/6) and reddish yellow (7.5YR 6/6) masses of iron accumulation; moderately acid (pH 5.8).

Typical Pedon Location

Map unit in which located: Pyburn silty clay in an area of Chismore-Pyburn complex, 3 to 12 percent slopes

Location in survey area: In an area of woodland about 800 feet north and 1,700 feet east of the southwest corner of sec. 21, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—50 to 70 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Reaction—very strongly acid to moderately acid
Hue—10YR or 2.5Y
Depth to redoximorphic features—at mineral soil surface to a depth of 10 inches to depletions with chroma of 2 or less and concentrations with higher chroma

Ac horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—1 or 2 moist, 2 or 3 dry

Texture—silty clay
Content of clay—40 to 50 percent

BAc horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—1 or 2 moist, 2 or 3 dry
Texture—silty clay or silty clay loam
Content of clay—35 to 45 percent

Bt horizon:
Value—3 to 5 moist or dry
Chroma—1 or 2 moist, 2 to 4 dry
Texture—silty clay loam, clay, or silty clay
Content of clay—35 to 45 percent
Other features—slickensides or pressure faces may be present, but difficult to distinguish between these features

BC horizon:
Value—3 to 5 moist or dry
Chroma—1 to 3 moist or dry
Texture—clay or silty clay
Content of clay—50 to 70 percent
Other features—slickensides or pressure faces may be present, but difficult to distinguish between these features

C horizon:
Value—3 to 5 moist, 5 to 7 dry
Chroma—1 to 3 moist or dry
Texture—clay loam, silty clay, or clay
Content of clay—35 to 50 percent

Quosatana Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
General landscape: Flood plains
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope: 0 to 3 percent
Elevation: 200 to 750 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Humaquepts

Typical Pedon

A—0 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few coarse roots; many very fine and fine tubular pores; common medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; common fine distinct gray (10YR 6/1) iron depletions and common medium distinct strong brown (7.5YR 4/6 and 5/6) masses of iron accumulation; moderately acid (pH 5.6); clear smooth boundary.

Bg—14 to 39 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few coarse roots; common very fine and fine tubular pores; many medium distinct gray (10YR 6/1) iron depletions and many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid (pH 5.8); gradual smooth boundary.

BCg—39 to 48 inches; dark gray (10YR 4/1) silty clay loam, gray (10YR 6/1) dry; weak medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; few very fine and fine tubular pores; many medium prominent gray (5YR 5/1) iron depletions and many coarse prominent reddish brown (5YR 4/4) masses of iron accumulation; moderately acid (pH 5.8); gradual smooth boundary.

Cg—48 to 65 inches; gray (10YR 5/1), stratified loam to silty clay, light gray (10YR 7/1) dry; massive; hard, firm, moderately sticky and moderately plastic; few fine roots; few very fine and fine tubular pores; many medium prominent gray (5YR 5/1) iron depletions and many coarse prominent reddish brown (5YR 4/4) masses of iron accumulation; moderately acid (pH 6.0).

Typical Pedon Location

Map unit in which located: Quosatana silt loam in an area of Kirkendall-Nekoma-Quosatana complex, 0 to 3 percent slopes

Location in survey area: In an area of unimproved native pasture about 300 feet north and 100 feet east of the southwest corner of sec. 26, T. 14 S., R. 9 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent
Content of sand—less than 15 percent, by weight, fine sand or coarser

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—within 10 inches of mineral soil surface to depletions with chroma of 2 or less and concentrations with higher chroma

A horizon:
Hue—10YR or 2.5Y
Value—2 or 3 moist, 4 or 5 dry
Chroma—1 to 3 moist or dry; chroma of 3 extends to a depth of less than 6 inches
Texture—silt loam
Content of clay—20 to 27 percent
Reaction—strongly acid or moderately acid

Bg and BCg horizons:
Hue—10YR to 5Y
Value—4 or 5 moist, 5 to 7 dry
Chroma—1 or 2 moist or dry
Texture—silt loam or silty clay loam
Content of clay—25 to 35 percent
Reaction—strongly acid to slightly acid

Cg horizon:
Hue—10YR to 5Y
Value—5 or 6 moist, 6 to 8 dry
Chroma—1 or 2 moist or dry

Texture—stratified loam to silty clay
Content of clay—25 to 45 percent
Reaction—very strongly acid to slightly acid
Other features—stratified in some pedons; thin discontinuous lenses of finer textured material in lower part in some pedons

Remote Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 30 to 90 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Loamy-skeletal, isotic, mesic Typic Eutrudepts

Typical Pedon

Oi—0 to 1 inch; undecomposed and slightly decomposed plant material; abrupt smooth boundary.

A—1 to 5 inches; brown (10YR 4/3) very gravelly loam, pale brown (10YR 6/3) dry; moderate fine and very fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many very fine and fine tubular pores; 50 percent gravel and 5 percent cobbles; 5 percent paragravel; moderately acid (pH 5.9); clear wavy boundary.

Bw1—5 to 17 inches; dark yellowish brown (10YR 4/4) very gravelly loam, light yellowish brown (10YR 6/4) dry; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; many fine tubular pores; 50 percent gravel and 5 percent cobbles; 5 percent paragravel; moderately acid (pH 5.6); gradual wavy boundary.

Bw2—17 to 33 inches; dark yellowish brown (10YR 4/4) very gravelly loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; many fine tubular pores; 40 percent gravel and 15 percent cobbles; 20 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.1); gradual wavy boundary.

Bw3—33 to 42 inches; dark yellowish brown (10YR 4/4) very gravelly loam, light yellowish brown (10YR 6/4) dry; moderate medium and fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common fine tubular pores; 40 percent gravel and 15 percent cobbles; 20 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.4); clear wavy boundary.

C—42 to 72 inches; dark yellowish brown (10YR 4/6) very gravelly loam, light yellowish brown (10YR 6/4) dry; massive; slightly hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common fine tubular pores; 30 percent gravel and 15 percent cobbles; 20 percent paragravel and 10 percent paracobbles; strongly acid (pH 5.1).

Typical Pedon Location

Map unit in which located: Remote very gravelly loam in an area of Digger-Umpcoos-Remote complex, 60 to 90 percent slopes
Location in survey area: In an area of woodland about 750 feet south and 2,310 feet east of the northwest corner of sec. 8, T. 14 S., R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 30 percent
Content of rock fragments—35 to 80 percent
Content of pararock fragments—0 to 35 percent

Profile:
Depth to bedrock—more than 60 inches
Hue—10YR or 7.5YR
Reaction—strongly acid or moderately acid

A horizon:
Value—3 or 4 moist, 6 or 7 dry
Chroma—2 or 3 moist or dry
Texture—very gravelly loam
Content of clay—15 to 25 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 10 percent paragravel

Bw horizon:
Value—4 or 5 moist, 6 or 7 dry
Chroma—4 to 6 moist or dry
Texture—very gravelly loam, extremely gravelly loam, or extremely gravelly clay loam
Content of clay—15 to 30 percent
Content of rock fragments—30 to 60 percent gravel and 5 to 15 percent cobbles
Content of pararock fragments—0 to 25 percent paragravel and 0 to 10 percent paracobbles

C horizon:
Value—4 or 5 moist, 6 or 7 dry
Chroma—4 to 7 moist or dry
Texture—very gravelly loam, extremely gravelly loam, or extremely gravelly clay loam
Content of clay—15 to 30 percent
Content of rock fragments—30 to 50 percent gravel and 5 to 15 percent cobbles
Content of pararock fragments—0 to 25 percent paragravel and 0 to 15 percent paracobbles

The Remote soils in this county are a taxadjunct to the series because the slightly higher base saturation is outside the range for the series. This difference, however, does not significantly affect use and management of the soils.

Ritner Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains and hills
Parent material: Clayey colluvium derived from basalt

Slope: 3 to 90 percent
Elevation: 240 to 2,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Clayey-skeletal, mixed, superactive, mesic Typic Haploxerepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
A—1 to 6 inches; dark reddish brown (5YR 3/4) gravelly silty clay loam, reddish brown (5YR 4/4) dry; strong fine granular structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine irregular pores; 20 percent fine and medium gravel; moderately acid (pH 5.8); clear smooth boundary.
BA—6 to 16 inches; dark reddish brown (2.5YR 3/4) gravelly silty clay loam, reddish brown (2.5YR 4/4) dry; strong fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine tubular pores; 30 percent gravel; moderately acid (pH 5.6); clear smooth boundary.
Bw1—16 to 25 inches; dark reddish brown (2.5YR 3/4) very cobbly silty clay, reddish brown (2.5YR 4/4) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and very plastic; many fine roots; common very fine tubular pores; 25 percent gravel and 15 percent cobbles; strongly acid (pH 5.2); clear smooth boundary.
Bw2—25 to 39 inches; dark reddish brown (2.5YR 3/4) very cobbly silty clay, reddish brown (2.5YR 4/4) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; 30 percent gravel and 25 percent cobbles; strongly acid (pH 5.2); abrupt wavy boundary.
2R—39 inches; indurated, highly fractured basalt with few thin tongues of Bw2 horizon material in fractures; coatings of red clay on surface of rock fragments.

Typical Pedon Location

Map unit in which located: Ritner gravelly silty clay loam in an area of Price-MacDunn-Ritner complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 1,980 feet north and 2,200 feet east of the southwest corner of sec. 3, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 50 percent
Content of rock fragments—35 to 75 percent

Profile:
Depth to bedrock—20 to 40 inches to an indurated, highly fractured lithic contact

A horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 to 4 moist or dry
Texture—gravelly silty clay loam
Content of clay—30 to 40 percent
Reaction—moderately acid
Content of rock fragments—15 to 25 percent gravel and 0 to 10 percent cobbles

BA horizon:
Hue—2.5YR, 5YR, or 7.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—3 or 4 moist or dry
Texture—gravelly silty clay loam, cobbly silty clay loam, or very cobbly silty clay loam
Content of clay—30 to 40 percent
Reaction—moderately acid
Content of rock fragments—15 to 30 percent gravel and 0 to 20 percent cobbles

Bw horizon:
Hue—2.5YR, 5YR, or 7.5YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—very cobbly silty clay, very cobbly silty clay loam, very cobbly clay, or extremely cobbly silty clay
Content of clay—35 to 50 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—20 to 35 percent gravel, 15 to 35 percent cobbles, and 0 to 5 percent stones

Romanose Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Mountains
Parent material: Loamy colluvium derived from basalt or coarse-grained intrusive igneous rock
Slope: 30 to 90 percent
Elevation: 1,800 to 3,000 feet
Mean annual precipitation: 90 to 130 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 70 to 120 days

Taxonomic class: Medial-skeletal, ferrihydritic, frigid Lithic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 7 inches; very dark brown (10YR 2/2) very gravelly medial loam, very dark grayish brown (10YR 3/2) dry; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine and few medium and coarse irregular pores; few medium dark reddish brown (5YR 3/3), yellowish red (5YR 5/8), and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and very weakly cemented; 40 percent gravel and 15 percent cobbles; strongly acid (pH 5.5); clear smooth boundary.

AC—7 to 11 inches; dark brown (10YR 3/3) very gravelly medial loam, dark brown (10YR 4/3) dry; weak very fine and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine, common medium, and few coarse irregular pores; few medium dark reddish brown (5YR 3/3), yellowish red (5YR 5/8), and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and very weakly cemented; 40 percent gravel and 15 percent cobbles; strongly acid (pH 5.4); clear wavy boundary.

C—11 to 16 inches; dark brown (10YR 4/3) extremely cobbly medial loam, dark yellowish brown (10YR 4/4) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine and few medium and coarse roots; common fine and medium and few coarse tubular pores; few medium dark reddish brown (5YR 3/3), yellowish red (5YR 5/8), and reddish yellow (5YR 6/8) iron-manganese concretions that are spherical in matrix and very weakly cemented; 30 percent gravel and 40 percent cobbles; strongly acid (pH 5.2); abrupt wavy boundary.

R—16 inches; indurated, highly fractured basalt; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Romanose very gravelly medial loam in an area of Caterl-Laderly-Romanose complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 2,300 feet north and 1,400 feet east of the southwest corner of sec. 5, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—12 to 18 percent (apparent, by field estimates)
Content of rock fragments—35 to 80 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—10 to 20 inches to an indurated, highly fractured lithic contact
Reaction—very strongly acid or strongly acid
Hue—10YR or 7.5YR
Consistence of solum—weakly smeary or moderately smeary

A horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—very gravelly medial loam
Clay content—12 to 20 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 20 percent cobbles

AC horizon:
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—extremely gravelly medial loam or very gravelly medial loam
Content of clay—15 to 20 percent
Content of rock fragments—40 to 50 percent gravel and 10 to 20 percent cobbles

C horizon:
Value—3 or 4 moist, 4 or 5 dry
Chroma—4 to 6 moist or dry
Texture—very cobbly medial loam or extremely cobbly medial loam
Content of clay—10 to 20 percent
Content of rock fragments—15 to 30 percent gravel and 25 to 50 percent cobbles

Salem Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow over very rapid

General landscape: Terraces
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 3 percent
Elevation: 100 to 800 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical Pedon

Ap—0 to 9 inches; very dark brown (10YR 2/2) gravelly silt loam, dark grayish brown (10YR 4/2) dry; weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; many very fine tubular pores; 15 percent gravel; slightly acid (pH 6.2); gradual smooth boundary.
Bt—9 to 18 inches; very dark brown (10YR 2/2) gravelly silty clay loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many roots; many fine and very fine tubular pores; few faint and distinct clay films; 15 percent gravel; slightly acid (pH 6.4); abrupt smooth boundary.
BCt—18 to 30 inches; dark brown (10YR 3/3) very gravelly clay loam, brown (10YR 5/3) dry; massive; hard, firm, slightly sticky and moderately plastic; common roots; common fine and very fine irregular pores; faint coatings of clay on sand grains; 45 percent gravel; neutral (pH 6.6); clear smooth boundary.
2C—30 to 60 inches; grayish brown (10YR 5/2), stratified extremely gravelly sand to very gravelly loamy sand, pale brown (10YR 6/3) dry; single grain; loose; few roots; many irregular pores; 55 percent gravel; slightly acid (pH 6.2).

Typical Pedon Location

Map unit in which located: Salem gravelly silt loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 2,050 feet east and 1,600 north of the southwest corner of sec. 14, T. 9 S., R. 2 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent in upper part and 0 to 15 percent in lower part
Content of rock fragments—25 to 35 percent in upper part and 35 to 70 percent in lower part

Profile:
Thickness of mollic epipedon—20 to 30 inches
Depth to bedrock—more than 60 inches
Depth to 2C horizon and strongly contrasting textural stratification—20 to 35 inches
Hue—10YR or 7.5YR

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—gravelly silt loam
Content of clay—15 to 25 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—15 to 35 percent gravel and 0 to 5 percent cobbles

Bt horizon:
Value—2 or 3 moist, 4 or 5 dry

Chroma—2 to 4 moist or dry
Texture—gravelly silty clay loam, gravelly clay loam, or gravelly sandy clay loam
Content of clay—25 to 35 percent
Reaction—slightly acid or neutral
Content of rock fragments—15 to 35 percent gravel and 0 to 5 percent cobbles

BCt horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—very gravelly clay loam, gravelly clay loam, gravelly sandy clay loam, or very gravelly sandy clay loam
Content of clay—25 to 35 percent
Reaction—slightly acid or neutral
Content of rock fragments—20 to 50 percent gravel and 0 to 10 percent cobbles

2C horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—stratified very gravelly loamy sand to extremely gravelly sand
Content of clay—0 to 15 percent
Reaction—slightly acid or neutral
Content of rock fragments—35 to 65 percent gravel and 5 to 10 percent cobbles

Santiam Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
General landscape: Terrace remnants
Parent material: Silty glaciolacustrine deposits over clayey alluvium
Slope: 2 to 20 percent
Elevation: 250 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Aquultic Haploxeralfs

Typical Pedon

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate medium and fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many roots; many very fine and fine irregular pores; moderately acid (pH 5.6); abrupt smooth boundary.

AB—6 to 13 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak very coarse prismatic structure parting to moderate medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many roots; many fine and very fine tubular pores; common fine and very fine faint brown (10YR 4/3) masses of iron accumulation; 5 percent gravel; moderately acid (pH 5.6); abrupt smooth boundary.

Bt1—13 to 22 inches; dark yellowish brown (10YR 4/4) silty clay loam, pale brown (10YR 6/3) dry; weak very coarse prismatic structure parting to moderate medium and fine subangular blocky; hard, friable, moderately sticky and moderately plastic; common roots; many fine and very fine tubular pores; many medium and fine faint brown (10YR 4/3) masses of iron accumulation; few faint

clay films; faint coatings of silt and sand on faces of peds; common fine black manganese films and common iron-manganese concretions; strongly acid (pH 5.4); gradual wavy boundary.

Bt2—22 to 30 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; common black stains; weak fine prismatic structure parting to moderate fine and medium subangular and angular blocky; very hard, firm, moderately sticky and moderately plastic; few roots; many medium, fine, and very fine tubular pores; common distinct clay films; prominent coatings of silt that are grayish brown (10YR 5/2), light gray (10YR 7/2) dry, on faces of peds; common black manganese films; common fine and medium distinct very dark grayish brown (10YR 3/2) iron depletions; 5 percent gravel; strongly acid (pH 5.2); clear smooth boundary.

2C—30 to 60 inches; dark grayish brown (10YR 4/2) and brown (10YR 4/3) silty clay, pale brown (10YR 6/3) and light gray (10YR 7/1) dry; massive; very hard, firm, very sticky and very plastic; few very fine roots; common fine and very fine pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation; 10 percent paragravel; strongly acid (pH 5.2).

Typical Pedon Location

Map unit in which located: Santiam silt loam, 2 to 8 percent slopes

Location in survey area: In a cultivated area about 1,400 feet west and 2,500 feet north of the southeast corner of sec. 1, T. 10 S., R. 3 W.

Range in Characteristics

Particle-size control section:
Content of clay—35 to 45 percent
Content of rock fragments—0 to 5 percent
Content of pararock fragments—0 to 15 percent

Profile:
Depth to bedrock—more than 60 inches
Reaction—strongly acid or moderately acid
Hue—2.5Y to 7.5YR
Depth to redoximorphic features—20 to 30 inches to iron depletions, masses of iron accumulation in some areas

A horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist, 2 or 3 dry
Texture—silt loam
Content of clay—18 to 27 percent
Content of rock fragments—0 to 5 percent gravel

AB and BA horizons, where present:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Content of rock fragments—0 to 5 percent gravel

Bt horizon:
Value—3 to 5 moist, 5 to 7 dry
Chroma—2 to 4 moist, 2 to 6 dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 45 percent

Content of rock fragments—0 to 5 percent gravel and 0 to 15 percent paragravel

2C horizon:
Value—4 or 5 moist, 6 or 7 dry
Chroma—2 to 6 moist, 1 to 6 dry
Texture—silty clay, clay, paragravelly silty clay, or paragravelly clay
Content of clay—40 to 50 percent
Content of rock fragments—0 to 5 percent gravel and 5 to 25 percent paragravel

Sevencedars Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 90 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Medial-skeletal, ferrihydritic Typic Fulvicryands

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; abrupt smooth boundary.

A1—2 to 8 inches; very dark grayish brown (10YR 3/2) gravelly medial loam, dark brown (10YR 3/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine roots; many very fine and fine irregular pores; few fine dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese nodules that are spherical in matrix and weakly cemented; 20 percent gravel, 5 percent cobbles, and 5 percent stones; strongly acid (pH 5.2); clear smooth boundary.

A2—8 to 17 inches; dark brown (10YR 3/3) very gravelly medial loam, brown (10YR 4/3) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine and few medium roots; many very fine and fine tubular pores; few fine dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese nodules that are spherical in matrix and weakly cemented; 30 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid (pH 5.2); clear smooth boundary.

Bw1—17 to 30 inches; dark yellowish brown (10YR 3/4) very gravelly medial loam, dark yellowish brown (10YR 4/4) dry; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; few fine, medium, and coarse roots; common very fine and fine tubular pores; few fine dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese nodules that are spherical in matrix and weakly cemented; 35 percent gravel and 5 percent cobbles; very strongly acid (pH 5.0); clear smooth boundary.

Bw2—30 to 48 inches; dark yellowish brown (10YR 3/4) very gravelly medial loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; few fine roots; few fine tubular pores; 30 percent gravel and 5 percent cobbles; very strongly acid (pH 5.0); gradual smooth boundary.

Bw3—48 to 65 inches; dark yellowish brown (10YR 4/4) very gravelly medial loam,

yellowish brown (10YR 5/6) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine roots; few very fine and fine tubular pores; 30 percent gravel, 5 percent cobbles, and 1 percent stones; very strongly acid (pH 4.8).

Typical Pedon Location

Map unit in which located: Sevencedars gravelly medial loam in an area of Sevencedars-Newanna-Woodspoint complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 1,825 feet north and 1,625 feet east of the southwest corner of sec. 20, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—10 to 25 percent (apparent, by field estimates)
Content of rock fragments—40 to 80 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Hue—7.5YR or 10YR
Reaction—very strongly acid or strongly acid
Consistence of solum—moderately smeary or weakly smeary

A horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—gravelly medial loam in upper part and very gravelly medial loam in lower part
Content of clay—10 to 25 percent
Content of rock fragments—15 to 35 percent gravel, 5 to 25 percent cobbles, and 0 to 10 percent stones

Bw horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist, 4 to 8 dry
Texture—very gravelly medial loam, very cobbly medial loam, or extremely cobbly medial loam
Content of clay—10 to 25 percent
Content of rock fragments—15 to 35 percent gravel, 5 to 35 percent cobbles, and 0 to 10 percent stones

Shivigny Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Mountains
Parent material: Clayey colluvium and residuum derived from basalt
Slope: 3 to 60 percent
Elevation: 300 to 1,300 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 180 to 220 days

Taxonomic class: Clayey-skeletal, mixed, active, mesic Typic Palehumults

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A—1 to 7 inches; dark reddish brown (5YR 3/3) very gravelly clay loam, brown (7.5YR 5/4) dry; moderate very fine and fine subangular blocky structure parting to moderate fine granular; slightly hard, firm, slightly sticky and slightly plastic; many very fine, common fine and medium, and few coarse roots; many very fine tubular pores; 50 percent gravel and 5 percent cobbles; strongly acid (pH 5.2); clear smooth boundary.

BA—7 to 13 inches; dark reddish brown (5YR 3/4) very gravelly clay loam, brown (7.5YR 5/4) dry; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; many very fine tubular pores; 45 percent gravel and 10 percent cobbles; very strongly acid (pH 5.0); clear smooth boundary.

Bt1—13 to 23 inches; dark reddish brown (5YR 3/4) extremely gravelly silty clay, brown (7.5YR 5/4) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common fine and medium and few very fine and coarse roots; many very fine and common fine tubular pores; few faint clay films on faces of peds and common distinct clay films in pores; 50 percent gravel and 15 percent cobbles; very strongly acid (pH 4.8); gradual wavy boundary.

Bt2—23 to 34 inches; reddish brown (5YR 4/6) extremely gravelly silty clay, strong brown (7.5YR 5/6) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common medium and coarse and few very fine and fine roots; common very fine tubular pores; many distinct clay films on faces of peds and common distinct and prominent clay films in pores; 50 percent gravel and 20 percent cobbles; very strongly acid (pH 4.8); gradual wavy boundary.

Bt3—34 to 43 inches; reddish brown (5YR 4/4) extremely cobbly silty clay, strong brown (7.5YR 5/6) dry; moderate medium and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; common medium and coarse and few very fine and fine roots; common very fine tubular pores; many distinct and prominent clay films on faces of peds and many faint and distinct clay films in pores; 30 percent gravel and 40 percent cobbles; very strongly acid (pH 4.8); gradual wavy boundary.

BCt—43 to 68 inches; yellowish red (5YR 4/6) extremely cobbly silty clay, strong brown (7.5YR 5/6) dry; weak medium subangular blocky structure; very hard, very firm, very sticky and very plastic; very few fine roots; very few fine tubular pores; many distinct and prominent clay films on faces of peds and in pores; 25 percent gravel and 40 percent cobbles; very strongly acid (pH 4.6); abrupt wavy boundary.

Crt—68 inches; moderately cemented, highly fractured basalt; fractures 4 inches to less than 18 inches apart; many prominent clay films coating rock fragments and along fracture planes.

Typical Pedon Location

Map unit in which located: Shivigny very gravelly clay loam in an area of Shivigny-Honeygrove complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 10 feet south and 2,400 feet east of the northwest corner of sec. 28, T. 14 S., R. 7 W.

Range in Characteristics

Particle-size control section:

Content of clay—40 to 55 percent

Content of rock fragments—35 to 70 percent

Profile:
Depth to bedrock—60 to 80 inches to a moderately cemented paralithic contact

A horizon:
Hue—5YR or 7.5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—very gravelly clay loam
Content of clay—27 to 35 percent
Content of rock fragments—25 to 50 percent gravel and 0 to 10 percent cobbles
Reaction—strongly acid or moderately acid

BA and AB horizons, where present:
Hue—5YR or 7.5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—4 to 6 moist or dry
Texture—very gravelly clay loam or extremely gravelly silty clay
Content of clay—35 to 50 percent
Content of rock fragments—30 to 50 percent gravel and 0 to 10 percent cobbles
Reaction—very strongly acid or strongly acid

Bt and BCt horizons:
Hue—2.5YR to 7.5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—4 to 8 moist or dry
Texture—extremely gravelly silty clay, extremely cobbly silty clay, or very cobbly silty clay
Content of clay—40 to 55 percent
Content of rock fragments—25 to 50 percent gravel, 10 to 40 percent cobbles, and 0 to 10 percent stones
Reaction—very strongly acid or strongly acid

Slickrock Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Ancient landslide deposits on mountains
Parent material: Recent loamy colluvium over older loamy colluvium and residuum derived from sandstone and siltstone
Slope: 3 to 60 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Medial over loamy, ferrihydritic over isotic, mesic Alic Hapludands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A1—1 to 11 inches; very dark brown (7.5YR 2/2) gravelly medial loam, brown (7.5YR 4/2) dry; moderate very fine and fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine irregular pores; 20 percent gravel; 3 percent paragravel and 2 percent paracobbles; strongly acid (pH 5.1); clear smooth boundary.

A2—11 to 23 inches; dark brown (7.5YR 3/2) gravelly medial loam, brown (7.5YR 4/3) dry; moderate very fine and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine and fine tubular pores; 15 percent gravel; 3 percent paragravel and 2 percent paracobbles; very strongly acid (pH 5.0); gradual smooth boundary.

Bw1—23 to 36 inches; dark brown (7.5YR 3/3) gravelly clay loam, brown (7.5YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine, common medium, and few coarse roots; common very fine and fine tubular pores; 15 percent gravel; 5 percent paragravel and 2 percent paracobbles; very strongly acid (pH 4.8); gradual smooth boundary.

Bw2—36 to 48 inches; brown (7.5YR 4/3) gravelly clay loam, brown (7.5YR 4/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine tubular pores; 15 percent gravel; 10 percent paragravel and 5 percent paracobbles; very strongly acid (pH 4.8); gradual smooth boundary.

BC—48 to 60 inches; brown (7.5YR 4/4) gravelly clay loam, brown (7.5YR 5/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine tubular pores; 15 percent gravel; 15 percent paragravel and 15 percent paracobbles; very strongly acid (pH 4.8).

Typical Pedon Location

Map unit in which located: Slickrock gravelly medial loam, 3 to 25 percent slopes (fig. 99)

Location in survey area: In an area of woodland about 200 feet north and 200 feet east of the southwest corner of sec. 33, T. 13 S., R. 8 W.

Range in Characteristics

Particle-size control section:

Content of clay—18 to 25 percent in medial upper part of solum and 25 to 35 percent in loamy lower part of solum (apparent, by field estimates)

Content of rock fragments—15 to 30 percent

Content of pararock fragments—0 to 30 percent

Profile:

Thickness of umbric epipedon—24 to 36 inches

Depth to bedrock—more than 60 inches

Hue—7.5YR or 10YR

Reaction—very strongly acid or strongly acid

A horizon:

Value—2 or 3 moist, 4 or 5 dry

Chroma—2 or 3 moist or dry

Texture—gravelly medial loam

Content of clay—18 to 25 percent

Content of rock fragments—15 to 25 percent gravel and 0 to 5 percent cobbles

Content of pararock fragments—0 to 10 percent paragravel and 0 to 5 percent paracobbles

Consistence—weakly smeary or moderately smeary

Bw horizon:

Value—3 or 4 moist, 4 or 5 dry (3 moist extends to a minimum depth of 24 inches)

Figure 99.—Typical profile of Slickrock gravelly medial loam, 3 to 25 percent slopes.

Chroma—3 or 4 moist or dry (3 extends to a minimum depth of 24 inches)
Texture—gravelly clay loam or gravelly loam
Content of clay—25 to 35 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—5 to 15 percent paragravel and 0 to 15 percent paracobbles
Consistence of upper part—weakly smeary or moderately smeary

BC horizon:
Value—4 or 5 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—gravelly clay loam, gravelly loam, or very gravelly clay loam
Content of clay—25 to 35 percent
Content of rock fragments—15 to 30 percent gravel and 0 to 20 percent cobbles
Content of pararock fragments—10 to 25 percent paragravel and 5 to 20 percent paracobbles

Steiwer Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Silty glaciolacustrine deposits mixed with loamy colluvium derived from sandstone and siltstone
Slope: 3 to 60 percent
Elevation: 250 to 650 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Haploxerolls

Typical Pedon

A1—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many fine irregular pores; moderately acid (pH 5.6); clear smooth boundary.

A2—7 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; strongly acid (pH 5.4); gradual smooth boundary.

Bw1—15 to 19 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common fine roots; many very fine and fine tubular pores; strongly acid (pH 5.4); clear smooth boundary.

Bw2—19 to 26 inches; brown (10YR 4/3) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common fine roots; common very fine tubular pores; few faint coatings on peds; 1 percent fine siltstone fragments; strongly acid (pH 5.2); abrupt wavy boundary.

2Cr—26 to 36 inches; moderately cemented siltstone.

Typical Pedon Location

Yamhill County, Oregon; in an area of pasture about 2,100 feet west and 400 feet south of the northwest corner of sec. 11, T. 7 S., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—27 to 35 percent
Content of rock fragments—0 to 15 percent
Content of pararock fragments—0 to 35 percent

Profile:
Thickness of mollic epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches to a moderately cemented paralithic contact
Hue—10YR or 7.5YR

A1 horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry

Texture—silt loam
Content of clay—20 to 27 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 10 percent paragravel

A2, AB, and BA horizons, where present:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 or 3 moist or dry
Texture—silt loam, silty clay loam, loam, or clay loam
Content of clay—25 to 35 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 5 percent gravel
Content of pararock fragments—0 to 10 percent paragravel

Bw horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—clay loam, silty clay loam, paragravelly clay loam, or paragravelly silty clay loam
Content of clay—27 to 35 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 10 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 35 percent paragravel

Treharne Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
General landscape: Low stream terraces
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope: 0 to 3 percent
Elevation: 300 to 1,200 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-silty, isotic, mesic Aquultic Hapludalfs

Typical Pedon

Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine roots; many very fine irregular pores; few medium very dark gray (10YR 3/1) iron-manganese nodules that are spherical in matrix and weakly cemented; very strongly acid (pH 4.8); clear smooth boundary.
A—6 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; few medium very dark gray (10YR 3/1) iron-manganese nodules that are spherical in matrix and weakly cemented; very strongly acid (pH 4.8); gradual smooth boundary.
Bt1—14 to 21 inches; brown (10YR 4/3) silty clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and

moderately plastic; common very fine and fine roots; many very fine tubular pores; few faint clay films on faces of peds and common faint clay films on surfaces along pores; common medium very dark gray (10YR 3/1) iron-manganese nodules that are spherical in matrix and weakly cemented; very strongly acid (pH 5.0); gradual smooth boundary.

Bt2—21 to 32 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; few faint clay films on faces of peds and common distinct clay films on surfaces along pores; common fine distinct light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 4/6 and 5/6) masses of iron accumulation; very strongly acid (pH 5.0); clear wavy boundary.

C—32 to 68 inches; brown (10YR 5/3) silty clay loam, very pale brown (10YR 7/4) dry; massive; hard, firm, moderately sticky and moderately plastic; few fine roots; many very fine tubular pores; many fine distinct light brownish gray (10YR 6/2) iron depletions and many fine and medium prominent strong brown (7.5YR 4/6 and 5/6) masses of iron accumulation; very strongly acid (pH 5.0).

Typical Pedon Location

Map unit in which located: Treharne silt loam in an area of Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes

Location in survey area: In an area of pasture about 330 feet north and 1,980 feet west of the southeast corner of sec. 20, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—18 to 35 percent
Content of sand—less than 15 percent, by weight, fine sand or coarser

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Hue—10YR, 2.5Y, or 5Y
Depth to redoximorphic features—iron depletions with chroma of 2 or less, masses of iron accumulation with chroma of more than 2 at a depth of more than 20 inches

Ap and A horizons:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—15 to 20 percent
Reaction—very strongly acid to slightly acid

Bt horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—2 to 6 moist or dry
Texture—silt loam or silty clay loam
Content of clay—18 to 35 percent
Content of sand—less than 15 percent sand that is coarser than very fine sand
Reaction—very strongly acid or strongly acid

C horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—1 to 4 moist or dry
Texture—silty clay loam, silt loam, or silty clay

Content of clay—20 to 45 percent
Reaction—extremely acid to strongly acid

Umpcoos Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 30 to 90 percent
Elevation: 200 to 1,800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 45 to 53 degrees F
Frost-free period: 110 to 220 days

Taxonomic class: Loamy-skeletal, isotic, mesic Lithic Eutrudepts

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
A—1 to 5 inches; very dark grayish brown (10YR 3/2) very gravelly loam, brown (10YR 5/3) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium and few coarse roots; many very fine and fine irregular pores; 50 percent gravel and 5 percent cobbles; 5 percent paracobbles; moderately acid (pH 5.6); clear smooth boundary.
Bw1—5 to 12 inches; brown (10YR 4/3) very cobbly loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; many very fine and fine interstitial pores; 20 percent gravel and 35 percent cobbles; 5 percent paragravel and 10 percent paracobbles; strongly acid (pH 5.4); clear smooth boundary.
Bw2—12 to 16 inches; yellowish brown (10YR 5/4) extremely cobbly loam, very pale brown (10YR 7/4) dry; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common fine and medium interstitial pores; 25 percent gravel and 45 percent cobbles; 5 percent paragravel and 5 percent paracobbles; strongly acid (pH 5.4); abrupt wavy boundary.
R—16 inches; very strongly cemented, highly fractured sandstone; fractures 4 inches to less than 18 inches apart.

Typical Pedon Location

Map unit in which located: Umpcoos very gravelly loam in an area of Digger-Umpcoos-Remote complex, 60 to 90 percent slopes
Location in survey area: In an area of woodland about 2,100 feet south and 700 feet west of northeast corner of sec. 7, T. 14 S, R. 8 W.

Range in Characteristics

Particle-size control section:
Content of clay—15 to 25 percent
Content of rock fragments—35 to 65 percent
Content of pararock fragments—10 to 25 percent

Profile:
Depth to bedrock—10 to 20 inches to a very strongly cemented, highly fractured lithic contact

Reaction—strongly acid or moderately acid
Hue—10YR or 7.5YR

A horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—very gravelly loam
Content of clay—15 to 20 percent
Content of rock fragments—35 to 50 percent gravel and 0 to 5 percent cobbles
Content of pararock fragments—0 to 10 percent paragravel and 0 to 5 percent paracobbles

Bw horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—very cobbly loam, extremely cobbly loam, or very gravelly loam
Content of clay—15 to 25 percent
Content of rock fragments—10 to 40 percent gravel and 25 to 50 percent cobbles
Content of pararock fragments—5 to 20 percent paragravel and 5 to 15 paracobbles

Valsetz Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope: 3 to 90 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Medial-skeletal, ferrihydritic Alic Haplocryands

Typical Pedon

Oi—0 to 3 inches; slightly decomposed plant material; abrupt wavy boundary.

A—3 to 11 inches; very dark brown (7.5YR 2.5/2) very stony medial loam, brown (7.5YR 4/3) dry; weak very fine and fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine to medium and common coarse roots; many very fine irregular pores; 20 percent gravel, 20 percent cobbles, and 15 percent stones; very strongly acid (pH 4.6); clear wavy boundary.

Bw1—11 to 21 inches; dark brown (7.5YR 3/3) very cobbly medial sandy loam, strong brown (7.5YR 4/6) dry; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; many very fine to medium and common coarse roots; many very fine tubular pores; 20 percent gravel, 25 percent cobbles, and 10 percent stones; very strongly acid (pH 4.6); gradual wavy boundary.

Bw2—21 to 30 inches; dark brown (7.5YR 3/4) extremely cobbly medial sandy loam, strong brown (7.5YR 4/6) dry; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; weakly smeary; common fine and medium and few coarse roots; many very fine tubular pores; 20 percent gravel, 35 percent cobbles, and 10 percent stones; very strongly acid (pH 4.8); clear wavy boundary.

Bw3—30 to 35 inches; dark yellowish brown (10YR 4/6) extremely cobbly medial

sandy loam, brownish yellow (10YR 6/6) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common fine and medium and few coarse roots; common very fine tubular pores; 20 percent gravel, 30 percent cobbles, and 15 percent stones; very strongly acid (pH 4.8); clear wavy boundary.

R—35 to 39 inches; indurated, highly fractured igneous bedrock; fractures 18 inches to less than 39 inches apart.

Typical Pedon Location

Map unit in which located: Valsetz very stony medial loam in an area of Valsetz-Yellowstone complex, 30 to 60 percent slopes

Location in survey area: In an area of woodland about 990 feet north and 990 feet east of the southwest corner of sec. 20, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—10 to 25 percent (apparent, by field estimates)
Content of rock fragments—40 to 80 percent

Profile:
Depth to bedrock—20 to 40 inches to an indurated, highly fractured lithic contact
Reaction—very strongly acid or strongly acid
Consistence of solum—moderately smeary or weakly smeary

A horizon:
Hue—7.5YR or 5YR
Value—2 to 4 moist, 4 or 5 dry
Chroma—2 to 4 moist or dry
Texture—very stony medial loam
Content of clay—20 to 25 percent
Content of rock fragments—20 to 40 percent gravel, 5 to 20 percent cobbles, and 15 to 30 percent stones

Bw horizon:
Hue—10YR, 7.5YR, or 5YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—4 to 6 moist or dry
Texture—extremely cobbly medial sandy loam, very cobbly medial sandy loam, or very cobbly medial loam
Content of clay—10 to 25 percent
Content of rock fragments—15 to 50 percent gravel, 25 to 40 percent cobbles, and 0 to 15 percent stones

Verboort Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
General landscape: Flood plains
Parent material: Loamy alluvium over silty and clayey glaciolacustrine deposits
Slope: 0 to 3 percent
Elevation: 150 to 300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, mixed, superactive, mesic Xerertic Argialbolls

Typical Pedon

Ap—0 to 8 inches; dark brown (10YR 2/2) silty clay loam, grayish brown (10YR 5/2) dry; strong fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine pores; moderately acid (pH 5.8); abrupt smooth boundary.

A—8 to 12 inches; very dark brown (10YR 2/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine roots; common very fine pores; moderately acid (pH 5.8); clear smooth boundary.

E—12 to 19 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 6/1) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; common very fine pores; many fine prominent dark reddish brown (5YR 3/2) masses of iron accumulation; moderately acid (pH 6.0); abrupt smooth boundary.

2Bt—19 to 28 inches; very dark gray (N 3/0) clay, grayish brown (2.5Y 5/2) dry; weak medium prismatic structure and weak medium subangular blocky; very hard, very firm, very sticky and very plastic; common very fine roots between prisms and very few fine roots within prisms; few very fine pores; many faint clay films on prism faces and in pores and channels; some pressure faces on larger prisms; slightly acid (pH 6.4); abrupt smooth boundary.

2BCt—28 to 33 inches; dark grayish brown (2.5Y 4/2) silty clay, light brownish gray (2.5Y 6/2) dry; weak fine prismatic structure and weak fine subangular blocky; very hard, very firm, moderately sticky and very plastic; few very fine roots between prisms and on surfaces of peds; common very fine pores; many faint very dark gray (N 3/0) clay films on many surfaces; neutral (pH 6.6); gradual smooth boundary.

2C—33 to 60 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light gray (2.5Y 7/2) dry; massive; firm, moderately sticky and moderately plastic; few very fine roots; few fine and medium pores with very dark gray (N 3/0) films; many medium prominent dark brown (7.5YR 4/2) masses of iron accumulation; neutral (pH 6.6).

Typical Pedon Location

Map unit in which located: Verboort silty clay loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 2,700 feet west and 2,000 feet south of the northeast corner of sec. 10, T. 1 N., R. 2 W.

Range in Characteristics

Particle-size control section:

Content of clay—40 to 50 percent

Profile:

Thickness of mollic epipedon—10 to 17 inches

Depth to bedrock—more than 60 inches

Depth to abrupt textural change—16 to 26 inches

Depth to redoximorphic features—at the surface to a depth of 10 inches to iron depletions and masses of iron accumulation

A horizon:

Hue—10YR

Value—2 or 3 moist, 5 dry

Chroma—1 or 2 moist or dry

Texture—silty clay loam

Content of clay—27 to 35 percent
Reaction—strongly acid or moderately acid

E horizon:
Hue—10YR or neutral
Value—3 or 4 moist, 6 dry
Chroma—1 or less moist or dry
Texture—silt loam or silty clay loam
Content of clay—25 to 35 percent
Reaction—strongly acid or moderately acid

2Bt horizon:
Hue—neutral, or 5Y or 2.5Y
Value—3 or 4 moist, 5 dry
Chroma—2 or less moist or dry
Texture—clay or silty clay
Content of clay—40 to 50 percent
Reaction—moderately acid to neutral

2BCt horizon:
Hue—2.5Y or 5Y
Value—4 or 5 moist, 6 or 7 dry
Chroma—2 or 3 moist or dry
Texture—clay or silty clay
Content of clay—40 to 50 percent
Reaction—moderately acid to neutral

2C horizon:
Hue—2.5Y or 5Y
Value—4 or 5 moist, 6 or 7 dry
Chroma—2 or 3 moist or dry
Texture—silt loam or silty clay loam
Content of clay—25 to 35 percent
Reaction—slightly acid or neutral

Waldo Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
General landscape: Flood plains
Parent material: Clayey alluvium
Slope: 0 to 3 percent
Elevation: 100 to 900 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls

Typical Pedon

Ap1—0 to 2 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate very fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine roots; many irregular

pores; many fine reddish brown and black iron and manganese concretions; moderately acid (pH 5.6); abrupt smooth boundary.

Ap2—2 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; very weak fine granular structure; very hard, very firm, moderately sticky and moderately plastic; few roots; few very fine tubular pores and few irregular pores; many fine reddish brown and black iron and manganese concretions; moderately acid (pH 5.7); abrupt smooth boundary.

A—7 to 10 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; strong medium and fine granular structure; hard, friable, moderately sticky and moderately plastic; common roots; many irregular pores; many coarse, medium, and fine reddish brown and black concretions; common medium distinct dark gray (10YR 4/1) and very dark gray (10YR 3/1) iron depletions and common medium distinct red (2.5YR 4/8) masses of iron accumulation; moderately acid (pH 5.8); abrupt wavy boundary.

BA—10 to 15 inches; very dark grayish brown (10YR 3/2) clay, gray (10YR 5/1) dry; strong coarse and very fine subangular blocky structure; very hard, firm, very sticky and very plastic; common roots; many very fine and fine tubular pores; faint coatings of silt on faces of peds; many fine and very fine reddish brown and black iron and manganese concretions; common medium distinct very dark gray (10YR 3/1) iron depletions and common medium prominent yellowish red (5YR 5/8) masses of iron accumulation; slightly acid (pH 6.1); clear wavy boundary.

Bg1—15 to 23 inches; dark gray (N 4/0) clay, gray (N 5/0) dry; strong coarse prismatic structure parting to moderate coarse subangular blocky; very hard, very firm, very sticky and very plastic; common roots; many very fine and fine tubular pores; faint coatings of silt on faces of peds; many fine reddish brown and black iron and manganese concretions; few medium and coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid (pH 5.9); clear smooth boundary.

Bg2—23 to 37 inches; dark gray (N 4/0) clay, gray (N 5/0) dry; strong coarse prismatic structure parting to moderate coarse subangular blocky; very hard, firm, very sticky and very plastic; common roots; many very fine and fine tubular pores; few fine reddish brown and black iron and manganese concretions; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid (pH 5.8); gradual smooth boundary.

BCg—37 to 46 inches; gray (N 5/0) silty clay, gray (N 6/0) dry; weak coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few roots; few very fine tubular pores; few distinct gray clay films in larger pores; few fine reddish brown and black iron and manganese concretions; many prominent strong brown (7.5YR 5/8) and yellowish red (5YR 4/8) masses of iron accumulation; moderately acid (pH 5.7); gradual smooth boundary.

Cg—46 to 60 inches; gray (N 5/0) silty clay, gray (N 6/0) dry; massive; very hard, firm, very sticky and very plastic; very few roots; common very fine and very few medium tubular pores; thick continuous clay films in cracks, pores, and root channels; few medium black manganese concretions; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid (pH 5.7).

Typical Pedon Location

Map unit in which located: Waldo silty clay loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 900 feet south and 550 feet west of the northeast corner of sec. 29, T. 8 S., R. 1 W.

Range in Characteristics

Particle-size control section:
Content of clay—40 to 55 percent
Content of rock fragments—0 to 3 percent

Profile:
Thickness of mollic epipedon—10 to 24 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—0 to 15 inches to masses of iron accumulation

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 10 percent gravel

BA horizon:
Hue—10YR or 2.5Y
Value—3 or 4 moist, 4 to 6 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam, silty clay, or clay
Content of clay—35 to 55 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 3 percent gravel

Bg, BCg, and Cg horizons:
Hue—neutral, or 5Y, 2.5Y, or 10YR
Value—4 or 5 moist, 5 to 7 dry
Chroma—0 to 2 moist or dry
Texture—silty clay or clay
Content of clay—40 to 55 percent
Reaction—strongly acid or moderately acid
Content of rock fragments—0 to 3 percent gravel

Wapato Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
General landscape: Flood plains
Parent material: Silty alluvium
Slope: 0 to 3 percent
Elevation: 50 to 1,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak and moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and moderately plastic; many very fine roots; many very fine pores; very dark brown (10YR 2/2) coatings on peds; slightly acid (pH 6.4); abrupt smooth boundary.

A—9 to 16 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; hard, friable, slightly sticky and moderately plastic; common fine roots; many very fine and common fine pores; very dark brown (10YR 2/2) coatings on peds; many fine prominent dark reddish brown (5YR 3/2) masses of iron accumulation; few fine black (10YR 2/1) masses of manganese accumulation; slightly acid (pH 6.2); gradual smooth boundary.

Bg1—16 to 22 inches; dark grayish brown (10YR 4/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine and few fine pores; many fine prominent dark reddish brown (5YR 3/2) masses of iron accumulation; few fine black (10YR 2/1) masses of manganese accumulation; moderately acid (pH 5.8); clear smooth boundary.

Bg2—22 to 32 inches; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate medium and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine and few fine pores; many fine prominent reddish brown (5YR 4/4) masses of iron accumulation; common fine black (10YR 2/1) masses of manganese accumulation; moderately acid (pH 5.8); clear smooth boundary.

BCg—32 to 60 inches; grayish brown (10YR 5/2) silty clay, light gray (10YR 7/2) dry; weak subangular blocky structure; hard, firm, very sticky and moderately plastic; few very fine pores; many fine prominent brown (7.5YR 4/4) masses of iron accumulation; common medium and fine black (10YR 2/1) masses of manganese accumulation; moderately acid (pH 5.6).

Typical Pedon Location

Map unit in which located: Wapato silty clay loam, 0 to 3 percent slopes (fig. 100)

Location in survey area: In a cultivated area about 2,200 feet west and 100 feet south of the northeast corner of sec. 23, T. 5 W., R. 5 W.

Range in Characteristics

Particle-size control section:
Content of clay—27 to 35 percent

Profile:
Thickness of mollic epipedon—10 to 24 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—0 to 12 inches to iron depletions and masses of iron accumulation

A horizon:
Hue—10YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 moist, 2 or 3 dry
Texture—silty clay loam
Content of clay—27 to 35 percent
Reaction—strongly acid to neutral

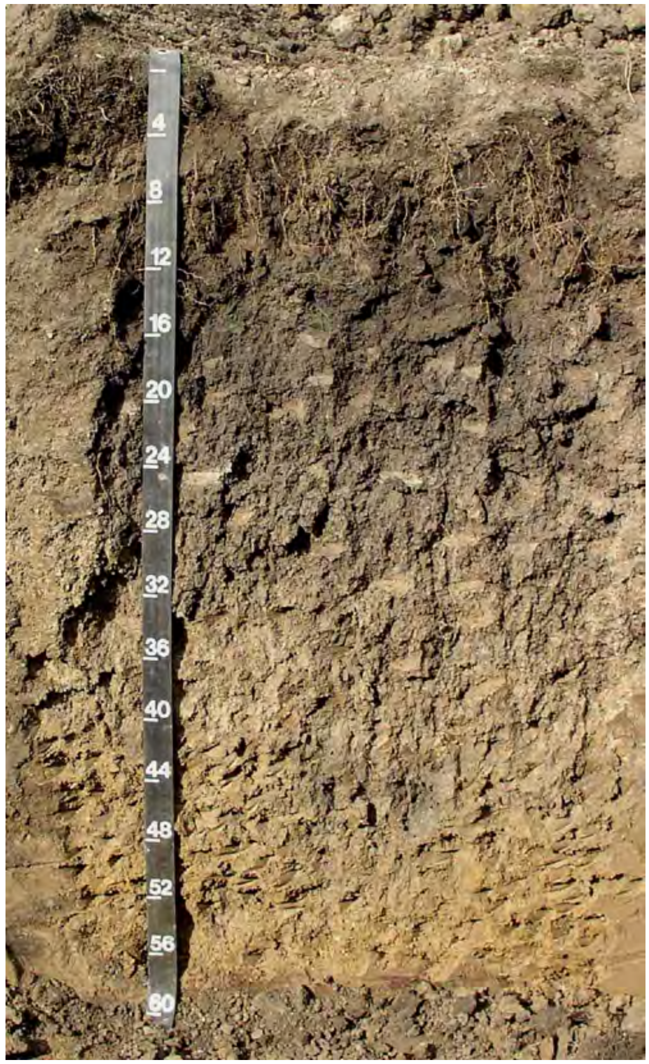


Figure 100.—Typical profile of Wapato silty clay loam, 0 to 3 percent slopes.

Bg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5 moist, 5 to 7 dry
Chroma—1 or 2 moist or dry
Texture—silty clay loam
Content of clay—27 to 40 percent
Reaction—strongly acid to slightly acid

BCg and Cg horizons, where present:
Hue—10YR, 5Y, 2.5Y, or 5GY
Value—4 to 6 moist, 5 to 7 dry
Chroma—0 to 2 moist or dry
Texture—silty clay loam or silty clay
Content of clay—35 to 50 percent
Reaction—moderately acid or slightly acid

Wasson Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately rapid
General landscape: Flood plains
Parent material: Stratified loamy recent alluvium derived from sandstone and siltstone
Slope: 0 to 3 percent
Elevation: 400 to 1,200 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Coarse-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Humaquepts

Typical Pedon

Oi—0 to 2 inches; slightly decomposed plant material; clear smooth boundary.

A—2 to 11 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (2.5Y 5/2) dry; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium and few coarse roots; many fine irregular pores; common medium black (10YR 2/1) iron-manganese concretions that are spherical in matrix and weakly cemented; common medium distinct gray (10YR 6/1) iron depletions and common medium distinct dark brown (7.5YR 3/4) masses of iron accumulation; moderately acid (pH 5.6); clear smooth boundary.

AC—11 to 15 inches; very dark grayish brown (2.5Y 3/2) very fine sandy loam, grayish brown (2.5Y 5/2) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium and few coarse roots; many fine tubular pores; common medium black (10YR 2/1) iron-manganese concretions that are spherical in matrix and weakly cemented; many medium distinct gray (10YR 6/1) iron depletions and strong brown (7.5YR 4/6 and 5/6) masses of iron accumulation; moderately acid (pH 5.6); clear smooth boundary.

Cg1—15 to 33 inches; very dark gray (5Y 3/1), stratified loamy fine sand to very fine sandy loam, light brownish gray (2.5Y 6/2) dry; single grain; soft, very friable, nonsticky and nonplastic; common fine and medium and few coarse roots; common fine irregular pores; many medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid (pH 5.2); clear wavy boundary.

Cg2—33 to 66 inches; dark gray (5Y 4/1), stratified fine sandy loam to loamy fine sand, light gray (2.5Y 7/2) dry; single grain; soft, very friable, nonsticky and nonplastic; common very fine and fine irregular pores; very strongly acid (pH 5.0).

Typical Pedon Location

Map unit in which located: Wasson loam in an area of Meda-Treharne-Wasson complex, 2 to 20 percent slopes

Location in survey area: In an area of woodland about 100 feet south and 2,310 feet west of the southeast corner of sec. 12, T. 13 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—5 to 10 percent
Content of sand—more than 15 percent fine sand or coarser

Profile:
Thickness of umbric epipedon—10 to 14 inches
Depth to bedrock—more than 60 inches
Depth to redoximorphic features—depletions with chroma of 2 or less and concentrations of higher chroma within 10 inches of mineral soil surface

A horizon:
Hue—10YR or 2.5Y
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—loam
Content of clay—10 to 15 percent
Reaction—moderately acid

AC horizon:
Hue—2.5Y or 10YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—very fine sandy loam
Content of clay—5 to 10 percent
Reaction—very strongly acid to moderately acid

Cg horizon:
Hue—5Y, 2.5Y, or 10YR
Value—3 to 5 moist, 5 to 7 dry
Chroma—1 moist, 1 or 2 dry
Texture—stratified very fine sandy loam to loamy fine sand
Content of clay—5 to 10 percent
Reaction—very strongly acid to moderately acid
Other features—thin discontinuous lenses of finer textured material in lower part in some pedons

Wellsdale Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 2 to 30 percent
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-loamy, mixed, active, mesic Aquultic Haploxeralfs

Typical Pedon

A1—0 to 2 inches; dark yellowish brown (10YR 3/4) loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure parting to moderate medium and coarse granular; moderately hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores and common fine and few medium tubular pores; strongly acid (pH 5.3); clear wavy boundary.
A2—2 to 8 inches; dark yellowish brown (10YR 3/4) loam, yellowish brown (10YR 5/4)

dry; weak fine and medium subangular blocky structure; moderately hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine, common fine, and few medium tubular pores; strongly acid (pH 5.3); clear smooth boundary.

BA—8 to 24 inches; dark brown (7.5YR 3/4) loam, brown (7.5YR 5/4) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; many very fine, common fine, and few medium tubular pores; strongly acid (pH 5.1); clear smooth boundary.

Bt1—24 to 34 inches; brown (7.5YR 4/4) loam, brown (7.5YR 5/4) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and few fine tubular pores; few faint clay films on faces of peds and surfaces along pores; common prominent black (10YR 2/1) manganese films; common prominent grayish brown (2.5Y 5/2) iron depletions; common distinct strong brown (7.5YR 4/6) iron concentrations; strongly acid (pH 5.2); clear smooth boundary.

Bt2—34 to 57 inches; brown (7.5YR 4/4) clay loam, strong brown (7.5YR 5/6) and reddish yellow (7.5YR 6/6) dry; strong medium angular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine and few fine tubular pores; common prominent clay films on faces of peds and surfaces along pores and root channels; common prominent coatings of sand on faces of peds; common prominent black (10YR 2/1) manganese films; common distinct strong brown (7.5YR 4/6) iron concentrations; strongly acid (pH 5.2); clear wavy boundary.

BCt—57 to 65 inches; strong brown (7.5YR 5/6), brown (7.5YR 5/4), and light brown (7.5YR 6/4) clay loam, reddish yellow (7.5YR 6/6) and light gray (10YR 7/2) dry; weak medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and common fine tubular pores; common prominent clay films on faces of peds and few prominent clay films on surfaces along pores and root channels; few prominent coatings of sand on faces of peds; common prominent black (10YR 2/1) manganese films; common prominent weak red (2.5YR 5/2) iron depletions; common distinct strong brown (7.5YR 4/6) iron concentrations; very strongly acid (pH 5.0).

Typical Pedon Location

Map unit in which located: Wellsdale loam in an area of Wellsdale-Willakenzie-Dupee complex, 2 to 12 percent slopes

Location in survey area: In a cultivated area about 1,700 feet west and 1,100 feet north of the southeast corner of sec. 24, T. 3 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent
Content of pararock fragments—0 to 30 percent

Profile:
Depth to bedrock—more than 60 inches
Hue—10YR or 7.5YR
Depth to redoximorphic features—20 to 30 inches to iron depletions

A horizon:
Value—2 or 3 moist, 4 to 6 dry
Chroma—3 or 4 moist or dry
Texture—loam
Content of clay—15 to 27 percent
Reaction—moderately acid or strongly acid

Content of rock fragments—0 to 3 percent gravel

BA and AB horizons, where present:
Value—3 or 4 moist, 5 or 6 dry
Chroma—4 moist, 4 to 6 dry
Texture—loam or clay loam
Content of clay—20 to 30 percent
Reaction—moderately acid or strongly acid
Content of pararock fragments—0 to 15 percent paragravel

Bt1 horizon:
Value—4 or 5 moist, 5 or 6 dry
Chroma—4 to 6 moist or dry
Texture—loam or clay loam
Content of clay—24 to 35 percent
Reaction—moderately acid or strongly acid
Content of pararock fragments—0 to 15 percent paragravel

Bt2 horizon:
Value—4 or 5 moist, 5 or 6 dry
Chroma—4 to 6 moist or dry
Texture—loam, clay loam, paragravelly loam, or paragravelly clay loam
Content of clay—24 to 40 percent
Reaction—strongly acid or very strongly acid
Content of pararock fragments—0 to 35 percent paragravel

BCt horizon:
Value—4 to 6 moist, 5 to 8 dry
Chroma—3 to 8 moist, 2 to 8 dry
Texture—loam, clay loam, paragravelly clay loam, or very paragravelly loam
Content of clay—25 to 40 percent
Reaction—strongly acid or very strongly acid
Content of pararock fragments—0 to 50 percent paragravel

Willakenzie Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills
Parent material: Loamy colluvium and residuum derived from sandstone and siltstone
Slope: 2 to 60 percent
Elevation: 200 to 700 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-loamy, mixed, active, mesic Ultic Haploxeralfs

Typical Pedon

Ap—0 to 5 inches; dark brown (7.5YR 3/3) loam, brown (10YR 5/3) dry; strong fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine roots; many very fine tubular pores; moderately acid (pH 5.9); clear smooth boundary.

A—5 to 11 inches; dark brown (7.5YR 3/4) loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable,

slightly sticky and nonplastic; common very fine roots; many very fine tubular pores; moderately acid (pH 5.6); abrupt smooth boundary.

Bt1—11 to 19 inches; brown (7.5YR 4/4) clay loam, strong brown (7.5YR 5/6) dry; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine, fine, and medium tubular pores; many distinct clay films on faces of peds and along pores; 5 percent paragravel; strongly acid (pH 5.4); clear wavy boundary.

Bt2—19 to 32 inches; strong brown (7.5YR 4/6) paragravelly clay loam, reddish yellow (7.5YR 6/6) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine, fine, and medium tubular pores; common distinct clay films on faces of peds and along pores; 25 percent paragravel; strongly acid (pH 5.4); clear irregular boundary.

Cr—32 inches; weakly cemented, tuffaceous sandstone.

Typical Pedon Location

Map unit in which located: Willakenzie loam in an area of Wellsdale-Willakenzie-Dupee complex, 12 to 20 percent north slopes

Location in survey area: In a cultivated area about 600 feet north and 1,100 feet west of the southeast corner of sec. 2, T. 3 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—24 to 35 percent
Content of pararock fragments—0 to 20 percent

Profile:
Depth to bedrock—20 to 40 inches to a weakly cemented paralithic contact
Hue—10YR or 7.5YR
Reaction—moderately acid or strongly acid

Ap or A1 horizon:
Value—2 or 3 moist, 4 to 6 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—loam
Content of clay—15 to 27 percent

A or A2 and BA horizons, where present:
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—loam or clay loam
Content of clay—20 to 30 percent
Content of rock fragments—0 to 3 percent gravel

Bt horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 or 4 moist, 4 to 6 dry
Texture—loam, clay loam, paragravelly loam, or paragravelly clay loam
Content of clay—24 to 35 percent
Content of pararock fragments—0 to 35 percent paragravel

Willamette Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow

General landscape: Terraces
Parent material: Silty glaciolacustrine deposits
Slope: 0 to 20 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical Pedon

Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; moderately acid (pH 5.6); abrupt smooth boundary.

A—6 to 13 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular and irregular pores; moderately acid (pH 5.6); clear smooth boundary.

AB—13 to 24 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate coarse prismatic structure and moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; moderately acid (pH 5.6); clear smooth boundary.

BA—24 to 33 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate coarse prismatic structure and moderate medium subangular blocky; hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; moderately acid (pH 5.8); clear smooth boundary.

2Bt—33 to 45 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate medium prismatic structure and moderate medium subangular blocky; hard, firm, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; common distinct and faint clay films along pores and on faces of peds; gray silt particles on 20 percent of vertical faces of peds; few very fine black stains; moderately acid (pH 5.8); diffuse smooth boundary.

2BCt—45 to 53 inches; dark yellowish brown (10YR 3/4) silty clay loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; many very fine tubular pores; very few faint and distinct clay films along pores; moderately acid (pH 5.8); clear wavy boundary.

2C—53 to 60 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine pores; few medium tubular pores; very few distinct clay films along pores; moderately acid (pH 5.9).

Typical Pedon Location

Map unit in which located: Willamette silt loam, 0 to 3 percent slopes
Location in survey area: In a cultivated area about 3,000 feet east and 600 feet south of the northwest corner of sec. 16, T. 13 S., R. 4 W.

Range in Characteristics

Particle-size control section:
Content of clay—20 to 35 percent

Profile:
Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—more than 60 inches
Hue—10YR
Depth to redoximorphic features—more than 40 inches to iron depletions, masses of iron accumulation in some pedons

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—15 to 25 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 3 percent gravel

AB and BA horizons:
Value—4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—strongly acid to slightly acid

2Bt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid or slightly acid

2BCt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid to neutral

2C horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—15 to 30 percent
Reaction—moderately acid to neutral

Witham Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
General landscape: Alluvial fans on hills
Parent material: Clayey alluvium and colluvium derived from basalt
Slope: 2 to 20 percent
Elevation: 250 to 1,200 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine, smectitic, mesic Vertic Haploxerolls

Typical Pedon

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate medium and fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine irregular pores; strongly acid (pH 5.4); clear smooth boundary.

BA—4 to 12 inches; very dark grayish brown (10YR 3/2) silty clay, dark grayish brown (10YR 4/2) dry; moderate coarse and medium subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine roots; many very fine irregular pores; very dark brown (10YR 2/2) coatings on peds; strongly acid (pH 5.4); gradual smooth boundary.

Bw1—12 to 21 inches; dark brown (10YR 3/3) clay, dark grayish brown (10YR 4/2) dry; weak coarse prismatic structure parting to moderate coarse subangular blocky; extremely hard, very firm, very sticky and very plastic; few very fine roots; many very fine tubular pores; few fine black concretions; 2 percent gravel; common fine yellowish brown (10YR 5/6) pararock fragments; few nonintersecting slickensides; moderately acid (pH 5.6); gradual smooth boundary.

Bw2—21 to 29 inches; dark brown (10YR 3/3) and brown (10YR 4/3) clay, brown (10YR 5/3) dry; weak coarse prismatic structure and weak coarse subangular blocky; extremely hard, very firm, very sticky and very plastic; few very fine roots; many very fine and fine tubular pores; few fine black concretions; 2 percent gravel; many fine yellowish brown (10YR 5/6) pararock fragments; few fine distinct yellowish brown (10YR 5/4 and 5/6) and brown (7.5YR 4/4) masses of iron accumulation; few nonintersecting slickensides; moderately acid (pH 5.8); gradual wavy boundary.

C—29 to 60 inches; very dark grayish brown (10YR 3/2) clay; massive; extremely hard, very firm, very sticky and very plastic; few very fine roots; 2 percent fine gravel; few very fine pores; common medium black stains; many medium distinct strong brown (7.5YR 5/6) and brown (7.5YR 4/3) masses of iron accumulation and brown (7.5YR 4/2) iron depletions; common fine and medium nonintersecting slickensides; moderately acid (pH 5.8).

Typical Pedon Location

Map unit in which located: Witham silty clay loam, 2 to 12 percent slopes

Location in survey area: In an area of pasture about 1,700 feet south and 100 feet east of the northwest corner of sec. 15, T. 11 S., R. 5 W.

Range in Characteristics

Particle-size control section:

Content of clay—50 to 60 percent

Content of rock fragments—0 to 5 percent

Profile:

Thickness of mollic epipedon—10 to 25 inches

Depth to bedrock—more than 60 inches

Depth to redoximorphic features—10 to 30 inches to iron depletions and masses of iron accumulation

A horizon:

Hue—10YR

Value—2 or 3 moist, 3 or 4 dry

Chroma—1 or 2 moist, 2 or 3 dry

Texture—silty clay loam

Content of clay—27 to 40 percent

Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 5 percent gravel

BA horizon:
Hue—10YR
Value—2 or 3 moist, 3 or 4 dry
Chroma—2 or 3 moist or dry
Texture—silty clay or clay
Content of clay—40 to 60 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 5 percent gravel

Bw horizon:
Hue—2.5Y or 10YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—1 to 3 moist, 2 or 3 dry
Texture—silty clay or clay
Content of clay—50 to 60 percent
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent gravel

C horizon:
Hue—2.5Y or 10YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—1 to 3 moist, 2 or 3 dry
Texture—silty clay or clay
Content of clay—50 to 60 percent
Reaction—moderately acid or slightly acid
Content of pararock fragments—0 to 15 percent paragravel
Content of rock fragments—0 to 5 percent gravel

Witzel Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
General landscape: Hills and mountains
Parent material: Loamy colluvium derived from basalt (fig. 101)
Slope: 3 to 60 percent
Elevation: 240 to 2,200 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 210 days

Taxonomic class: Loamy-skeletal, mixed, active, mesic Lithic Ultic Haploxerolls

Typical Pedon

A—0 to 4 inches; dark brown (7.5YR 3/2) very cobbly loam, brown (7.5YR 4/2) dry; moderate fine granular structure; hard, friable, slightly sticky and moderately plastic; many fine roots; many fine tubular and irregular pores; 20 percent gravel, 25 percent cobbles, and 5 percent stones; slightly acid (pH 6.4); gradual smooth boundary.

Bw1—4 to 11 inches; dark reddish brown (5YR 3/2) very cobbly clay loam, dark reddish gray (5YR 4/2) dry; moderate medium granular structure; hard, friable, moderately sticky and moderately plastic; many fine roots; many very fine tubular

Figure 101.—Typical profile of Witzel very cobbly loam in an area of Witzel-Ritner complex, 3 to 12 percent slopes.

and irregular pores; 15 percent gravel, 30 percent cobbles, and 10 percent stones; slightly acid (pH 6.2); gradual smooth boundary.

Bw2—11 to 17 inches; dark reddish brown (5YR 3/3) very cobbly clay loam, reddish brown (5YR 5/3) dry; moderate very fine subangular blocky structure and moderate medium granular; hard, firm, moderately sticky and very plastic; few fine roots; many very fine tubular pores; 15 percent gravel, 30 percent cobbles, and 10 percent stones; slightly acid (pH 6.2); abrupt wavy boundary.

2R—17 inches; indurated, partially fractured basalt.

Typical Pedon Location

Lane County, Oregon; in an area of woodland about 1,400 feet west and 200 feet south of the northeast corner of sec. 8, T. 17 S., R. 2 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent
Content of rock fragments—40 to 75 percent

Profile:
Thickness of mollic epipedon—7 to 20 inches
Depth to bedrock—12 to 20 inches to an indurated, partially fractured lithic contact
Reaction—moderately acid or slightly acid
Hue—10YR, 7.5YR, or 5YR

A horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist, 2 to 4 dry
Texture—very cobbly loam
Content of clay—18 to 27 percent
Content of rock fragments—15 to 35 percent gravel, 20 to 40 percent cobbles, and 0 to 10 percent stones

Bw horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—3 or 4 moist, 3 to 5 dry
Texture—very cobbly loam, very cobbly clay loam, extremely cobbly loam, extremely cobbly clay loam, or extremely stony silty clay loam
Content of clay—25 to 35 percent
Content of rock fragments—15 to 35 percent gravel, 25 to 45 percent cobbles, and 0 to 35 percent stones

Woodburn Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
General landscape: Terraces
Parent material: Silty glaciolacustrine deposits
Slope: 0 to 55 percent
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Aquultic Argixerolls

Typical Pedon

Ap—0 to 9 inches; very dark brown (10YR 2/2) silt loam, brown (10YR 5/3) dry; cloddy with very weak subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; many very fine and fine tubular pores; few fine irregular pores; common medium and fine reddish brown and black concretions; moderately acid (pH 5.9); abrupt smooth boundary.

A—9 to 17 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many roots; many very fine and fine and few medium tubular pores; common silt and sand grains on faces of peds; few thin very dark brown (10YR 2/2) coatings on faces of peds; few reddish brown and black concretions; slightly acid (pH 6.2); clear smooth boundary.

2Bt1—17 to 25 inches; dark yellowish brown (10YR 3/4) silty clay loam, brown (7.5YR 5/4) dry; moderate coarse and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common roots; many very fine and few fine tubular pores; few faint clay films on faces of peds; few reddish brown and

black concretions; few black stains on peds; moderately acid (pH 6.0); clear smooth boundary.

2Bt2—25 to 32 inches; dark brown (7.5YR 4/4) silty clay loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; brittle; common roots; many very fine and few fine tubular pores; many distinct clay films on faces of peds and along pores; few fine and medium distinct iron depletions, dark gray (10YR 4/1) and light brownish gray (10YR 6/2) dry; few fine black concretions and stains on faces of peds; moderately acid (pH 5.8); abrupt smooth boundary.

2BCt1—32 to 39 inches; dark brown (10YR 4/3) silt loam, brown (10YR 5/3) dry; massive with some indistinct planes of weakness and vertical planes that are more distinct than horizontal planes; very hard, very firm, slightly sticky and slightly plastic; brittle; few roots; many very fine and fine tubular pores; many distinct clay films on faces of peds and along some root channels and pores; few fine and medium black concretions and few black coatings on faces of peds; faint dark grayish brown (10YR 4/2) iron depletions in a few root channels; faint dark grayish brown (10YR 4/2) coatings on plane surfaces, light gray (10YR 7/2) dry; moderately acid (pH 5.7); gradual smooth boundary.

2BCt2—39 to 54 inches; dark brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; massive with some indistinct vertical planes of weakness; very hard, very firm, slightly sticky and slightly plastic; brittle; many very fine and fine tubular pores; many faint clay films along pores and old root channels; few black concretions and few coatings on faces of peds; moderately acid (pH 5.9); gradual wavy boundary.

2C1—54 to 68 inches; dark brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; massive; very hard, very firm, slightly sticky and slightly plastic; brittle; many very fine tubular pores; common distinct clay films along larger pores and old root and worm channels; few black coatings in pores and channels; moderately acid (pH 5.9); gradual wavy boundary.

2C2—68 to 80 inches; dark brown (10YR 4/3), stratified fine sandy loam to silt loam, pale brown (10YR 6/3) dry; massive; very hard, firm, slightly sticky and slightly plastic; many very fine pores; few faint clay films along larger pores; few small black stains and coatings along pores and channels; moderately acid (pH 6.0); abrupt wavy boundary.

3C3—80 to 92 inches; dark brown (10YR 4/3), stratified fine sandy loam to silt loam, pale brown (10YR 6/3) dry; single grain; loose, friable; many fine irregular pores; moderately acid (pH 6.0).

Typical Pedon Location

Map unit in which located: Woodburn silt loam, 0 to 3 percent slopes

Location in survey area: In a cultivated area about 2,000 feet west and 50 feet north of the southeast corner of sec. 2, T. 4 S., R. 2 W.

Range in Characteristics

Particle-size control section:

Content of clay—20 to 35 percent

Profile:

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Hue—10YR or 7.5YR

Depth to redoximorphic features—20 to 30 inches to iron depletions, masses of iron accumulation in some pedons

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—silt loam
Content of clay—15 to 25 percent
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 3 percent gravel

2Bt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid or slightly acid

2BCt horizon:
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—moderately acid to neutral

2C horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—3 or 4 moist or dry
Texture—silt loam or silty clay loam in upper part and stratified fine sandy loam to silt loam in lower part
Content of clay—10 to 30 percent
Reaction—moderately acid to neutral

Woodspoint Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from basalt or coarse-grained intrusive igneous rock
Slope: 5 to 60 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Medial, ferrihydritic Typic Fulvicryands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.

A1—1 to 5 inches; very dark grayish brown (10YR 3/2) medial loam, dark brown (10YR 3/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium roots; many very fine and fine irregular pores; few fine dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese nodules that are spherical in matrix and weakly cemented; 8 percent gravel and 2 percent cobbles; strongly acid (pH 5.2); clear smooth boundary.

A2—5 to 16 inches; dark brown (10YR 3/3) gravelly medial loam, brown (10YR 4/3) dry; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; moderately smeary; common very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; few fine dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese nodules that are spherical in matrix and weakly cemented; 10 percent gravel and 5 percent cobbles; very strongly acid (pH 5.0); clear smooth boundary.

Bw1—16 to 27 inches; dark yellowish brown (10YR 4/4) gravelly medial loam, yellowish brown (10YR 5/4) dry; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; moderately smeary; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores; few fine dark reddish brown (5YR 3/4) and reddish yellow (5YR 6/8) iron-manganese nodules that are spherical in matrix and weakly cemented; 20 percent gravel and 8 percent cobbles; very strongly acid (pH 4.8); gradual smooth boundary.

Bw2—27 to 46 inches; strong brown (7.5YR 4/6) gravelly medial loam, reddish yellow (7.5YR 6/6) dry; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; weakly smeary; few fine and medium roots; few fine tubular pores; 20 percent gravel and 10 percent cobbles; very strongly acid (pH 4.6); abrupt wavy boundary.

R—46 inches; indurated, highly fractured, coarse-grained intrusive igneous rock; fractures 18 inches to less than 39 inches apart; few medium and coarse roots between fracture planes.

Typical Pedon Location

Map unit in which located: Woodspoint medial loam in an area of Sevencedars-Newanna-Woodspoint complex, 5 to 30 percent slopes

Location in survey area: In an area of woodland about 160 feet south and 500 feet east of the northwest corner of sec. 21, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—10 to 25 percent (apparent, by field estimates)
Content of rock fragments—10 to 30 percent

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—40 to 60 inches to an indurated, highly fractured lithic contact
Hue—7.5YR or 10YR
Reaction—very strongly acid or strongly acid
Consistence of solum—moderately smeary or weakly smeary

A horizon:
Value—2 or 3 moist, 3 to 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—medial loam in upper part and gravelly medial loam in lower part
Content of clay—10 to 25 percent
Content of rock fragments—0 to 10 percent gravel and 0 to 10 percent cobbles
Content of pararock fragments—0 to 15 percent paragravel

Bw horizon:
Value—3 or 4 moist, 4 to 6 dry
Chroma—3 to 6 moist, 4 to 8 dry
Texture—medial loam, gravelly medial loam, or paragravelly medial loam
Content of clay—10 to 25 percent

Content of rock fragments—5 to 30 percent gravel, 5 to 25 percent cobbles, 0 to 10 percent stones
Content of pararock fragments—0 to 30 percent paragravel

Yellowstone Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
General landscape: Mountains
Parent material: Loamy colluvium and residuum derived from igneous rock
Slope: 3 to 90 percent
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 120 to 150 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 100 days

Taxonomic class: Medial-skeletal, ferrihydritic Lithic Haplocryands

Typical Pedon

Oi—0 to 1 inch; slightly decomposed plant material; abrupt smooth boundary.
A—1 to 4 inches; very dark brown (7.5YR 2/2) very stony medial loam, brown (7.5YR 4/3) dry; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine roots; many very fine irregular pores; 10 percent gravel, 15 percent cobbles, and 15 percent stones; very strongly acid (pH 4.6); clear smooth boundary.
AC—4 to 9 inches; very dark brown (7.5YR 3/2) very stony medial loam, brown (7.5YR 4/3) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine, common medium, and few coarse roots; many very fine tubular pores; 10 percent gravel, 25 percent cobbles, and 15 percent stones; very strongly acid (pH 4.6); clear wavy boundary.
C—9 to 18 inches; dark brown (7.5YR 3/2) extremely stony medial loam, brown (7.5YR 4/4) dry; massive; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine to medium and few coarse roots; common very fine tubular pores; 5 percent gravel, 35 percent cobbles, and 40 percent stones; very strongly acid (pH 4.8); abrupt wavy boundary.
R—18 to 22 inches; indurated, highly fractured igneous bedrock; fractures 18 inches to less than 39 inches apart.

Typical Pedon Location

Map unit in which located: Yellowstone very stony medial loam in an area of Valsetz-Yellowstone complex, 30 to 60 percent slopes
Location in survey area: In an area of woodland about 660 feet north and 990 feet east of the southwest corner of sec. 20, T. 12 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—10 to 20 percent (apparent, by field estimates)
Content of rock fragments—40 to 80 percent

Profile:
Depth to bedrock—10 to 20 inches to an indurated, highly fractured lithic contact
Reaction—very strongly acid or strongly acid
Consistence of solum—moderately smeary or weakly smeary

A horizon:
Hue—7.5YR or 5YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry
Texture—very stony medial loam
Content of clay—10 to 20 percent
Content of rock fragments—10 to 20 percent gravel, 10 to 20 percent cobbles, and 15 to 25 percent stones

AC and C horizons:
Hue—7.5YR or 10YR
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—very stony medial loam, extremely stony medial loam, or very cobbly medial sandy loam
Content of clay—10 to 20 percent
Content of rock fragments—5 to 15 percent gravel, 25 to 40 percent cobbles, and 15 to 50 percent stones

Zyzzug Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
General landscape: Low stream terraces
Parent material: Silty alluvium derived from volcanic and sedimentary rock
Slope: 0 to 3 percent
Elevation: 300 to 800 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 140 to 210 days

Taxonomic class: Fine-silty, isotic, acid, mesic Typic Humaquepts

Typical Pedon

A—0 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium and few coarse roots; many very fine and fine tubular pores; common medium black (10YR 2/1) iron-manganese nodules that are spherical in matrix and weakly cemented; common fine distinct dark gray (10YR 4/1) and grayish brown (10YR 5/2) iron depletions and common medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; strongly acid (pH 5.2); clear smooth boundary.

Bg—12 to 36 inches; dark gray (10YR 4/1) silty clay loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine and medium and few coarse roots; common very fine and fine tubular pores; common fine distinct dark grayish brown (10YR 4/2) and gray (10YR 5/1) iron depletions and many medium distinct dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid (pH 5.4); clear wavy boundary.

BC—36 to 42 inches; dark yellowish brown (10YR 4/6) silty clay loam, brownish yellow (10YR 6/6) dry; weak coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few very fine and fine tubular pores; many fine and medium distinct grayish brown (10YR 5/2) and

light brownish gray (10YR 6/2) iron depletions; strongly acid (pH 5.4); clear wavy boundary.

C—42 to 63 inches; dark yellowish brown (10YR 4/6) clay loam, brownish yellow (10YR 6/6) dry; massive; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few very fine and fine tubular pores; many fine and medium distinct grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) iron depletions; strongly acid (pH 5.4).

Typical Pedon Location

Map unit in which located: Zyzzug silt loam in an area of Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes

Location in survey area: In an area of unimproved native pasture about 1,650 feet south and 2,310 feet east of the northwest corner of sec. 22, T. 14 S., R. 7 W.

Range in Characteristics

Particle-size control section:
Content of clay—25 to 35 percent
Content of sand—less than 15 percent of sand that is coarser than very fine sand

Profile:
Thickness of umbric epipedon—10 to 20 inches
Depth to bedrock—more than 60 inches
Reaction—strongly acid or moderately acid
Hue—10YR, 7.5YR, or 5YR
Depth to redoximorphic features—depletions with chroma of 2 or less and concentrations with higher chroma within 10 inches of the mineral soil surface

A horizon:
Value—2 or 3 moist, 4 or 5 dry
Chroma—1 or 2 moist, 2 or 3 dry
Texture—silt loam
Content of clay—20 to 27 percent

Bg horizon:
Value—3 to 5 moist, 5 to 7 dry
Chroma—1 or 2 moist, 2 to 6 dry
Texture—silt loam or silty clay loam
Content of clay—25 to 35 percent

BC horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—silt loam, silty clay loam, or clay loam
Content of clay—25 to 35 percent

C horizon:
Value—4 or 5 moist, 5 to 7 dry
Chroma—4 to 6 moist or dry
Texture—clay loam, silty clay loam, or silt loam
Content of clay—25 to 35 percent
Other features—thin discontinuous lenses of coarser material in lower part in some pedons

Formation of the Soils

Dr. Frank F. Reckendorf, sedimentation geologist, retired, Natural Resources Conservation Service, assisted in writing this section.

Soil is a natural, three-dimensional body on the earth's surface that supports plants. Its characteristics and properties have been determined by physical and chemical processes that result from the interaction of five factors—climate, living organisms, time, topography, and parent material (Parsons and others, 1968). The influence of any one of these factors varies from place to place, but the interaction of all the factors determines the kind of soil that forms.

The soils in this survey area have been greatly influenced by such factors as the warm, dry, long growing season of the Willamette Valley and the cool, wet, long growing season of the Coast Range Mountains and associated river valleys. The age and type of parent material have greatly influenced soil development in areas of recent alluvium along the river flood plains and areas of old alluvium on terraces. Colluvium and residuum derived from mixed volcanic and sedimentary material have imparted special characteristics to the soils in the Coast Range Mountains, such as low bulk density and high available water capacity. These soils also have a high content of organic matter (Green, 1983; Langridge, 1987; Patching, 1987).

In this section, the soil-forming factors of climate and living organisms are discussed separately. Time, topography, and parent material are discussed under the heading "Geomorphic Surfaces and Soil Development."

Climate

Climate has a strong influence on soil formation. Heat and moisture greatly influence the kind of vegetation that grows and the rate at which organic matter decomposes and minerals weather. Heat and moisture also influence the rate of removal of material from some soil horizons and the rate of accumulation in others.

Four major climatic zones, which significantly influence soil genesis, are in this survey area. The first zone includes the Willamette Valley and adjacent hills and foothills rising westward into the Coast Range Mountains. These areas are characterized by hot, dry summers and warm, wet winters. The second zone includes the lower elevations of the Coast Range Mountains, including several tributary river valleys. These areas are characterized by hot, moist summers and warm, wet winters. The third zone includes the middle elevations of the Coast Range Mountains. These areas are characterized by warm, moist summers and cool, wet winters. The fourth zone includes the higher elevation peaks and ridges in the Coast Range Mountains. These areas are characterized by cool, moist summers and cold, wet winters.

The flood plains, stream terraces, broad valley terraces, low hills, and foothills adjacent to the Coast Range Mountains are within the Willamette and Puget Sound Valleys major land resource area (USDA, 2006). In the Willamette Valley, the soils have formed under a xeric soil moisture regime. The summers are hot and dry, the winters are warm and wet, and the growing season is long. Plant growth begins early in spring and continues through midsummer. In the xeric soil moisture zone, grass is prominent in the plant community along with mixed conifer and deciduous forest of

Oregon white oak, bigleaf maple, and Douglas-fir (Franklin and Dyrness, 1973). The annual dieback of grass roots provides a large amount of organic material. The deciduous trees absorb calcium and other bases and return them to the soil surface annually through the falling leaves, thus reducing the effects of leaching (fig. 102). Mollisols have developed under these conditions. On younger flood plains and terraces, the accumulation of organic matter and limited leaching of bases have produced Xerolls such as the Chapman, Cloquato, Coburg, Malabon, and Newberg soils. On older low-elevation hills, where the soil-forming factors have been active for a longer period of time, Haploxeralfs such as the Dupee, Linslaw, and Santiam soils and Argixerolls such as the Dixonville and Gellatly soils have developed.

In the lower foothills, summers are hot and dry but the growing season is slightly shorter than that of the terraces at the lower elevations. The winters are warm and wet. Plant growth begins late in spring and continues until midsummer for soils that have a xeric soil moisture regime. On the steeper side slopes of the foothills, the accumulation of organic matter and rapid leaching of bases have formed Haploxerepts such as the MacDunn, Price, and Ritner soils. On the stable slopes of the foothills, an argillic horizon is evident in Xeric Humults such as the Bellpine, Gelderman, Jory, and Nekia soils. These older soils have a low level of base saturation because of leaching as a result of the higher rainfall.

The Coast Range Mountains are in the western portion of the survey area. They are within the Northern Pacific Coast Range, Foothills, and Valleys major land resource area (USDA, 2006). Because of the physical relief in the mountainous

Figure 102.—Leaves from deciduous trees provide nutrients that are ultimately recycled through the soil.

areas, there are various combinations of soil climatic zones in the mountains. Three soil temperature regimes are recognized in this major land resource area, which change with increasing elevation from warmest to coldest (mesic, frigid, and cryic). One soil moisture regime is recognized (udic), which encompasses all three soil temperature regimes. These climatic groupings vary considerably throughout this geographic area. The lower elevations, including several tributary river valleys, are characterized by warm, wet winters and hot, moist summers, and the peaks and ridges at the highest elevations are characterized by cool, moist summers and cold, wet winters with periods of snow cover. The length of the growing season is significantly less than in the Willamette Valley, and it becomes shorter as elevation increases.

Plant growth and the kinds of plants that are included in the climax plant community are quite varied. The soils in this area formed under three major types of plant cover. In the udic zone, the proportion of grasses and deciduous trees is lower and that of conifers is higher. Organic matter accumulates; however, the bases are absorbed by the conifers and therefore are not so readily returned to the soil. This environment produces enough plant growth for the development of an umbric epipedon. This area is divided further into two plant zones that exhibit major differences in the soils. At elevations of 200 to 3,000 feet in the Coast Range Mountains, the soils are developing under a native plant community that is within the Douglas-fir-western hemlock zone (Franklin and Dyrness, 1973; McCain and Diaz, 2002). The effects of the weathering processes on parent material in the mountains has shown that base saturation is not excessively low because of leaching; however, the higher precipitation in the udic zone has resulted in some leaching of bases. The soils with an umbric epipedon, such as the Kilchis and Kirkendall series, have formed. In addition, retention of aluminum, iron, and phosphorus along with accumulation of organic matter and low soil pH reflect the development of andic soil properties and Andisols. This is most evident in areas where igneous rock is the parent material. Hapludands such as Harslow, Hemcross, and Klistan soils have developed in areas of igneous rock at the lower, warmer elevations (mesic zone), and Hapludands such as Caterl, Laderly, and Murtip soils have developed at the middle elevations (frigid zone). In areas of sedimentary parent material, the soils also develop andic properties but to a lesser depth than in the soils that formed in igneous rock. Andic Dystrudepts such as Bohannon and Preacher soils have formed at the lower, warmer elevations, and Andic Dystrudepts such as Chintimini, Grassmountain, and Oldblue soils have formed at the middle, cooler elevations.

In some areas where the content of iron in the parent material is high, the soils are reddish in hue and high in chroma. Blachly, Honeygrove, Peavine, and Kilowan soils are examples. Soils that formed in light-colored parent material also have color that is high in value when dry, and they have an elevated content of organic matter in the surface epipedon. These soils are classified as Eutrudepts. Digger and Remote soils are examples.

At elevations above 3,000 feet in the Coast Range Mountains, the plant composition includes noble fir and minor amounts of Pacific silver fir (Franklin and Dyrness, 1973; McCain and Diaz, 2002) (fig. 103). In this zone, a thin dark-colored epipedon has developed and leaching has not produced albic and spodic horizons because of the higher soil pH. Soils derived from volcanic parent material common to these areas include Alic Haplocryands and Lithic Haplocryands such as Valsetz and Yellowstone soils that have an ochric epipedon and Typic Fulvicryands such as Newanna, Sevencedars, and Woodspoint soils that have an umbric epipedon. In open grassland areas, such as on the summit of Marys Peak, the soils have a very thick umbric epipedon. Pachic Fulvicryands such as Mulkey soils are in these areas. Sedimentary rock parent material is also common at these elevations. Andic

Figure 103.—The dominant trees in the cryic soil temperature zone are noble fir and Pacific silver fir, which have bluish-green needles.

Dystrocryepts such as Lurnick and Maryspeak soils and Lithic Dystrocryepts such as Luckiamute soils formed in this material.

Living Organisms

Living organisms, especially the higher plants, are a significant factor in soil formation. The changes they bring about depend mainly on life processes peculiar to each kind of organism. The kinds of organisms that live on and in the soil are determined in turn by climate and by the parent material, topography or relief, and age of the soil.

Plants provide a cover that reduces erosion and stabilizes the soil surface. Leaves, twigs, roots, and remains of entire plants accumulate on the surface of forest soils and are decomposed by microorganisms, earthworms, and other soil fauna. Plant roots widen cracks in the underlying rock, permitting water to penetrate. The uprooting of trees by wind also mixes soil layers and loosens the underlying material.

Small animals, earthworms, insects, and microorganisms influence the formation of soils in several ways. They mix organic matter into the mineral soil material and accelerate the decomposition of organic matter by breaking down the remains of plants. Small animals burrow into the soil and mix the layers. Earthworms and other small invertebrates feed on the organic matter in the upper few inches of the soil. They slowly, but continually, mix the soil material and can alter its chemistry. Bacteria, fungi, and other microorganisms hasten the weathering of rocks and the decomposition of organic matter (Green, 1983; Langridge, 1987; Patching, 1987).

In the survey area, conditions generally are favorable for most organisms to function. Earthworms are very common in all areas except those that have a frigid or cryic soil temperature regime. Small animals such as gophers and moles are common in the lower elevation mesic soil temperature regime.

Geomorphic Surfaces and Soil Development

The geomorphic surfaces in much of the Willamette Valley were mapped by Balster and Parsons, using high-altitude aerial photographs (Balster and Parsons, 1968). The surfaces were visually traced throughout the Willamette Valley part of the survey area. Sequential relationships among surfaces, stereoscopic observations, elevation, and photo-interpretation of tonal patterns were used to map the surfaces. Each geomorphic surface is named for a locality where that particular surface is well expressed (Balster and Parsons, 1968; Glasmann and others, 1980; Parsons and others, 1970).

The geomorphic surfaces generally fit into a time sequence, but there are exceptions that are noted in the discussion of individual surfaces. A complete sequence of the surfaces as they occur in the survey area given in order of their age from youngest to oldest is as follows—Horseshoe, Ingram, Winkle, Senecal, Calapooyia, Low Brateng, High Brateng, Dolph, and Eola. The geomorphic surfaces map included in this publication shows the spatial extent of the surfaces in the area.

Several ranges of radiocarbon dates from previous research studies done in western Oregon are mentioned in this discussion in order to demonstrate a correlation between geologic time and geomorphic surface development. It should be noted that none of these Carbon 14 dates have accounted for variations in the amount of Carbon 12 and 14 in the atmosphere over time.

Steep, broken topography that has slopes of more than 100 percent characterize the Looney geomorphic unit. Because of variable stability of the landscape, the soils and surfaces of the Looney unit fit no particular span of time; therefore, it is not considered a geomorphic surface. The Luckiamute unit, as mapped in narrow tributary valleys, includes the Horseshoe and Ingram surfaces and some areas of the Winkle surface.

Horseshoe Surface

The Horseshoe surface is the lower of the two flood plains. It has low relief and includes stream channels and associated areas such as point bar deposits, channel fillings, and abandoned meanders. The surface generally is underlain by coarse textured or moderately coarse textured alluvium. Many areas of the Horseshoe surface are not vegetated or support young stands of willow or cottonwood. Areas of this surface are dominantly less than 10 feet above the normal stream level. Annual flooding inundates the Horseshoe surface. Rapid changes of the Horseshoe surface occur as a result of cutting of new channels, abandonment of older channels, lateral migration of meanders, and downstream movement of alluvial deposits. The Horseshoe surface began its formation in the early Recent epoch and continued to only a short time ago, as shown by the presence of metallic artifacts in the alluvium. It is estimated that at least some of the geomorphic surface is post-settlement age (since the middle of the 19th century). Horseshoe Island, Bear Island, and the eastern side of Kiger Island adjacent to the Willamette River are examples of this surface. This surface takes its name from Horseshoe Island.

Soils of the Horseshoe surface are typified by Fluventic Haploxerolls such as Camas and Newberg soils, Dystric Xeropsamments such as Pilchuck soils, and miscellaneous areas such as Riverwash. The soils that formed on the flood plains show little evidence of soil development except for the darkening from organic matter

in the A horizon and weak subangular blocky structure in the AC horizon. In the tributary river valleys of the Coast Range Mountains, the equivalent soils on this surface are Fluventic Humic Dystrudepts such as Nekoma soils and higher taxonomic units such as Fluvaquents and Fluvents.

Ingram Surface

The Ingram surface is the higher of the two flood plains. Typically, this surface is subject to occasional, brief periods of flooding. The topography of the Ingram surface typically is undulating, and as much as 10 feet of relief is produced by overbank channeling during flood stage (Parsons and others, 1970). The bars and channels are oriented approximately parallel to the stream. The expression of micro-relief on the surface is related to the competence of the stream that flowed through an area. Longitudinal stream profiles with segmented gradients also add to the complexity of the Ingram surface. Elevation generally is 10 to 20 feet above the normal stream level. Texture of the soils generally is gravelly loam, silt loam, or silty clay loam, although some sandy strata also are common.

The stratigraphy and soils of the Ingram surface reflect a layering and textural composition typical of deposition by a meandering stream that truncated the adjacent higher and older Winkle geomorphic surface. Underlying the Ingram surface are sandy and gravelly deposits that are overlain by silty and sandy deposits. If gravel or coarse sandy material is near the surface and overlies finer sandy and silty deposits, the coarser material is recognized as natural levees produced by rapid overbank deposition. Areas of soils that have a gravelly surface texture can occur on the Ingram geomorphic surface, but the soils typically have a nongravelly surface texture. The central parts of Kiger Island and Stahlbush Island as well as Ingram Island are examples of this surface. This surface takes its name from Ingram Island.

Uncorrected Carbon 14 tests date sediment associated with the Ingram surface at 550 to 3,290 years old (Parsons and others, 1970); therefore, the change in the stream system that caused abandonment of the Winkle surface as a frequently-flooded flood plain occurred 3,290 to 5,250 years ago (Balster and Parsons, 1968; Reckendorf and Parsons, 1966). The partial abandonment of the Ingram surface as a flood plain occurred less than 550 years ago, which indicates the dynamic nature of the landscape.

Soils that formed in the alluvial sediment of the Ingram surface include Fluvaquentic Endoaquolls such as Wapato soils; Aquic Cumulic Haploxerolls such as McBee soils; Cumulic Ultic Haploxerolls such as Chapman, Chehalis, and Cloquato soils; and Fluventic Haploxerolls such as Camas and Newberg soils. These soils have a mollic epipedon, presumably inherited in part from the alluvial parent material, that has a presumed irregular decrease in organic matter content as depth increases. The Wapato soils have weak to strong structure and have been in place long enough to exhibit evidence of gleying and oxidation of ferrous iron to ferric iron, forming distinct redoximorphic features in the surface horizons. The water table and aquic conditions of the McBee soils are at a greater depth in the soil profile (20 to 30 inches). The Cloquato soils show little development other than an accumulation of organic matter in the surface layer. The Chapman, Chehalis, and McBee soils have a cambic horizon that shows some evidence of clay movement but not in amounts sufficient to qualify as an argillic horizon. In the tributary river valleys of the Coast Range Mountains are Oxyaquic Dystrudepts such as Kirkendall soils and Fluvaquentic Humaquepts such as Quosatana and Wasson soils.

Luckiamute Unit

This unit is on flood plains or in small drainageways that contain local alluvium derived from the erosion of material associated with the Brateng, Dolph, and Eola surfaces and the Looney unit. As defined, the concept of the Luckiamute unit includes areas of the Horseshoe and Ingram surfaces and areas of the Winkle surface that are too small to separate at the scale of mapping used. The name of this unit was taken from the Luckiamute River valley above the town of Pedee in Polk County.

The topography of the Luckiamute unit is typical of that of flood plains of small streams. Relief is absent, except for minor corrugations as a result of channeling which occurs in the nearly level map units that consist of Cumulic Ultic Haploxerolls such as Abiqua and Alsea soils and Aquic Cumulic Haploxerolls such as McAlpin soils. In depressional channels and drainageways are Fluvaquentic Vertic Endoaquolls such as Waldo soils, which are fine textured, have a dense, gleyed clay layer in the subsoil that has high shrink-swell potential, and have a seasonal high water table with aquic conditions at the soil surface during winter. Waldo soils pond surface water for long periods of time and are subject to occasional, brief periods of flooding in winter and early in spring. These examples are in the Alsea Valley; however, these soils and their associated map units occur more extensively in the Willamette Valley. A few small alluvial fans that extend out from small valleys are included in the Luckiamute unit. These fans contain sediment of variable composition, depending on what was eroded in the immediate source area. Examples of alluvial fans in the Alsea Valley are in the gently sloping map units that consist of Abiqua, Alsea, and McAlpin soils. In the tributary valleys of the Coast Range Mountains, Humic Dystrudepts such as Meda soils are on gently sloping to strongly sloping alluvial fans. Because the Luckiamute unit can be directly traced to the Horseshoe and Ingram surfaces, it is assumed that its age is similar to that of the same surfaces in the larger valleys.

Winkle Surface

The middle to early Holocene Winkle surface is the oldest surface related to the present drainage systems of western Oregon (Parsons and others, 1970). The Winkle, Ingram, and Horseshoe surfaces are related to the present Willamette River and its tributaries and make up approximately 30 percent of the Willamette Valley. The Winkle surface typically is a terrace. Infrequent periods of flooding, such as those with a 50-year average recurrence interval, will flood old channels and some lower portions of this surface. Rare periods of flooding, such as those with a 100- to 500-year average recurrence interval, will flood the entire Winkle surface (Reckendorf, 1993). Such a flood occurred in December of 1964. Most of the Winkle surface throughout the main Willamette Valley has the morphology typical of abandoned flood plains of aggrading streams with evidence of old channels and point bars (Parsons and Herriman, 1970). The elevation differences between the bars and channels are largely a result of the competence of the stream to transport sediment. The braided, overloaded stream channel that deposited sediment associated with the main southern Willamette Valley Winkle surface reflects the size of the stream responsible for the formation of the bars and channels. The Winkle surface as it progresses downvalley (northward) has fewer channels that branch off the parent waterway of a braided river. Progressing further downvalley, the landscape and stratigraphy appear to be formed by a single-branch meandering stream. The equivalent Winkle surface along the tributary valleys is a combination of Winkle-age braided streams,

meandering streams, and alluvial fans. For example, on the Winkle surface along the Luckiamute River, Malabon and Coburg soils formed in clayey, silty, and sandy deposits of a meandering stream that are underlain by sandy and gravelly deposits. These deposits range in age from 10,490 +/- 290 years to 10,850 +/- 250 years. In contrast, the Winkle-age landscape and soils in the Salem area below Turner Gap formed in sandy and gravelly braided stream and alluvial fan deposits from the Santiam River. Elevations of the Winkle surface in this survey area typically are 15 to 30 feet above the normal flow level of the present streams.

The sediment beneath the Winkle surface ranges in age from 5,250 to 10,850 years, as determined by uncorrected Carbon 14 dating (Reckendorf, 1993). Texture of the sediment is dominantly silt and clay, which commonly are underlain by stratified sand and gravel at a depth of 4 to 6 feet. The uniform thickness of the overlying silt suggests slow aggradation or lateral migration of the river had been more significant than at present. Pumice and ash, related to the eruption of Mt. Mazama and the resultant formation of Crater Lake, is common in the sediment beneath the Winkle surface (Balster and Parsons, 1968). These deposits have been found as far north in the Willamette Valley as the community of Hubbard. Many areas of the Winkle surface along the Columbia River contain strata of volcanic ash from the eruption of Mt. Mazama. The later stages of aggradation of the Winkle surface were probably contemporaneous with the formation of Crater Lake. Stabilization of the Winkle surface is related to an alluvial cycle that began about 3,290 years ago (Balster and Parsons, 1968). If 5,250 +/- 270 years (Reckendorf and Parsons, 1966) is the most recent date known for the age of the Winkle surface, then abandonment of this surface as a flood plain began between 3,290 +/- 120 and 5,250 +/- 270 years ago (Parsons and Herriman, 1970). Areas south of Winkle Butte and near McFadden Marsh are representative of this geomorphic surface. The name of this surface was taken from Winkle Butte.

The well drained Malabon and poorly drained Conser soils are typical of soils that formed in sediment associated with the Winkle surface. This terrace has been stable long enough for the Malabon soils to have developed a mollic epipedon and to have an organic matter content resulting from pedogenesis rather than from organic matter inherited from the alluvial parent material. The fine texture of the parent material of these soils over time has facilitated the eluviation of clay from the surface to form a fine textured argillic horizon. Bases have been depleted to less than 75 percent of base saturation since the early Holocene. Areas of the Malabon soils have a gentle bar and channel micro-relief, which suggests that the parent material was frequently scoured by overflow during the early stages of soil development.

A soil excavation of a Native American hearth along the Luckiamute River in Polk County produced evidence of clay skins on the rocks of the hearth that were continuous with the clay films on the adjacent argillic horizon of the Malabon soil. Carbon-14 tests from the hearth resulted in a radiocarbon date of 5,250 +/- 270 years (Reckendorf and Parsons, 1966). This indicates that the argillic horizon in the Malabon soil on the Winkle surface in the Willamette Valley developed in this time frame. An acorn from the hearth was identified as California black oak (*Quercus kelloggii*). If this acorn was from a local source, it would suggest the presence of a warmer climate in the Willamette Valley when the Winkle-age soils formed.

The Conser soils have a mollic epipedon, a gleyed argillic horizon, aquic conditions within 10 inches of the soil surface, and a clay layer that has a high shrink-swell potential. Other major soils of the Winkle surface in the Willamette Valley include Awbrig, Bashaw, Coburg, and Salem soils (Parsons and others, 1973). In the river valleys of the Coast Range, Ultic Hapludalfs such as Eilertsen soils, Aquultic Hapludalfs such as Treharne soils, and Typic Humaquepts such as Zyzzug soils are on a surface of similar age.

Senecal Surface

The Senecal surface in the Willamette Valley is derived from minor incision, with integration of drainage, of the Calapooyia surface (Balster and Parsons, 1968). It is characterized by nearly level to strongly sloping valley terraces. The stratigraphy of deposits associated with the Calapooyia and Senecal surfaces has been extensively studied in the southern part of the Willamette Valley. They are considered to be silty and clayey sediment of the Willamette Sound, described by Condon in 1871 (Balster and Parsons, 1969; Condon, 1910). More recent work by O'Connor and Reckendorf (O'Connor and others, 2000; Reckendorf, 1993) indicates that the Willamette Valley sediment and resulting soils were derived from a broad range of late Pleistocene Missoula Flood events and the depositional sediment. In the southern part of the valley, the Senecal surface is characterized by gentle relief and organization of drainage with little incision (Parsons and others, 1968; Parsons and others, 1970). Elevation generally is 150 to 400 feet. The majority of the urban development associated with cities in the Willamette Valley are on this surface, including Albany, Corvallis, Dallas, McMinnville, Newberg, and northeast Salem (Huddleston, 1993). This surface takes its name from Senecal Creek near Woodburn in Marion County. The Senecal surface is considered to be late Pleistocene in age (Balster and Parsons, 1968; Parsons and others, 1970; Parsons and Herriman, 1970; Reckendorf, 1993).

Typical soils of the Senecal surface are the Willamette and Woodburn soils in the Willamette Valley and the Briedwell soils in Kings Valley. The Willamette and Woodburn soils are adjacent to streams where alluvial deposits from overbank flow has formed natural levees (Parsons and others, 1968). The Briedwell soils formed in gravelly alluvium and are in convex and linear areas on stream terraces and on convex terrace escarpments. Amity soils also are on the Senecal surface, stratigraphically occurring as a transitional zone between the better drained soils on this surface and the poorly drained soils (Concord and Dayton series) on the Calapooyia surface. In Linn County, an area of the Willamette soil series and associated soils were studied in detail (Parsons and others, 1968). It was found that the Amity soils are on slightly convex islands encircled by Dayton and Concord soils, which are in the more concave positions and in swales. In Polk County, another study involving the Willamette soil series and associated soils identified a previously unrecognized geomorphic surface, which was referred to as the Bethel surface (Gelderman, 1970). It is characterized by low, rounded hills that are graded to the level, intermediate Calapooyia surface. Laboratory characterization of the soils on the Bethel surface demonstrated distinct similarities to soils on the adjacent Senecal surface. Variations in taxonomic classification among soils on these surfaces in the study area were attributed to topographic position and stratigraphy of the region (Gelderman, 1970; Gelderman and Parsons, 1972). In this survey area, the Bethel surface is limited to a few areas of minor extent and is included within similar soil map units on the Senecal surface.

Calapooyia Surface

The Calapooya surface is an extensive landscape on the main floor of the Willamette Valley. It is best expressed and particularly prominent in the area from Corvallis Airport south to Winkle Butte and west to Muddy Creek. This surface is at an elevation of 150 to 400 feet. The type locality is along the eastern side of the Calapooyia River, in Linn County.

Absence of appreciable local relief is characteristic of the topography of the Calapooyia surface. In Benton County, the surface slopes in a northeasterly direction at a rate of about 5 feet per mile. As is expected on a surface with these

characteristics, drainage is poorly organized and drainage of surface water is extremely slow (Balster and Parsons, 1968; Parsons and others, 1970). This surface is mantled with the silty late Pleistocene Greenback, Malpass, and Irish Bend Members of the Willamette Formation and in some places by sediment associated with the Winkle surface and Luckiamute unit (Balster and Parsons, 1969). This surface contains most of the glacial erratics described by Allison as having been ice-rafted into the Willamette Valley (Allison, 1935). Alluvial toeslopes of valleyside alluvium help to merge the Calapooyia surface with the adjacent higher surface. The Calapooyia surface is considered to be of the late Pleistocene (Balster and Parsons, 1968; O'Connor and others, 2000; Parsons and others, 1970; Parsons and Herriman, 1970; Reckendorf, 1993).

Dayton soils (Vertic Albaqualfs) and Holcomb soils (Typic Argialbolls) are extensive on the Calapooyia surface. These soils formed in the Greenback and Malpass Members of the Willamette Formation and have been stable long enough to be somewhat depleted of bases (Balster and Parsons, 1969). The Dayton soils have an ochric epipedon, a prominent E horizon, and a dense silty clay argillic horizon. The Holcomb soils have a mollic epipedon, an E horizon, and a dense clay argillic horizon and are adjacent to streams where alluvial deposits from overbank flow have formed natural levees (Parsons and others, 1968). The master horizons of the Dayton and Holcomb soils are contrasting strata of the Greenback, Malpass, and Irish Bend Members of the Willamette Formation. Pedogenic features that formed across the lithologic discontinuities include organic matter accumulation, clay films, masses of iron accumulation and concretions, base eluviation, and structural development (Parsons and Balster, 1967) (fig. 104). It is important to note that in some areas of Dayton soils, the Greenback and Malpass Members of the Willamette Formation are underlain by a clayey substratum that is a Diamond Hill Paleosol, the upper member of the Rowland Formation (Balster and Parsons, 1969; Parsons, 1979). The Irish Bend Member is absent in these areas. It is interesting to note that the Malpass Member not only is not coextensive with the Irish Bend silts, but it truncates the Irish Bend Member and occurs in swales where it increases in thickness from 2 feet to 6 to 8 feet. This is apparent at the Irish Bend streambank cut in Linn County. In this area the Dayton soils occur in complex patterns with soils more typically associated with the cuts and fills that occurred during the time of the Willamette Formation. On a stream terrace level of equivalent age in tributary valleys of the Coast Range Mountains are Aquic Palehumults such as Chismore soils and Typic Umbraquults such as Pyburn soils. These soils are fine textured, have a dense clay layer, and are moderately well drained and poorly drained, respectively.

Brateng Surface

In the original fieldwork and publication on the geomorphic surfaces of the Willamette Valley, Balster and Parsons observed three distinct levels within the Dolph surface (Low Dolph, Middle Dolph, and High Dolph) (Balster and Parsons, 1968). These were mapped as one geomorphic surface at that time because of the scale of mapping used. Subsequent research in the late 1970's and early 1980's redefined the Dolph surface as the High Dolph level only (Glasmann and Kling, 1980; Glasmann and others, 1980). This was based on stratigraphy, mineralogy, and soil discontinuities and is a reasonable interpretation for the oldest portion of the original Dolph surface concept, that which was not modified by the glacially derived lacustrine depositions of the Bretz Floods 15,000 to 12,800 years ago (Reckendorf, 1993).

The remaining low and middle levels of the original Dolph surface concept have been redefined as the Brateng geomorphic surface. The name was taken from Brateng Road in Polk County, where the research occurred. The Brateng surface has two components—High Brateng, which is equivalent to the Middle Dolph level and

Figure 104.—Irish Bend cutbank in an area of Dayton silt loam, 0 to 2 percent slopes.

Low Brateng, which is equivalent to the Low Dolph level. There is a complex depositional history of the unconsolidated material that lies beneath the Brateng surface. In order to keep the chronology in perspective, it should be thought of as a middle to late Pleistocene landscape that has been modified by late Pleistocene erosion and associated glacial lacustrine deposition.

There is significant variability of the soils on the High and Low Brateng surfaces, reflecting the complexity of the landscape development. Flood sediment can occur on residual soil profiles, valleyside alluvium can overlie a paleosol where flood sediment has been eroded, or flood sediment or valleyside alluvium may overlie saprolite or bedrock in areas where the paleosol has been eroded away. Soil-forming processes have occurred under all of these circumstances. In an earlier research study done in the Coast Range Mountains, observations of abrupt horizon boundaries, concentration of rock fragments, and absence of transitional soil horizons provided field evidence of lithologic discontinuities within all of the soil profiles examined (Balster and Parsons, 1965b). The soils developed in a layer of pedisediment 13 to 30 inches thick deposited over Kings Valley Shale or other older material (Ruhe, 1960). These discontinuities were marked by morphological differences in the soils. The lateral continuity of this layer of material overlying a variety of older material also established that the parent material of the pedisediment was transported and was not residual. Discontinuities in a soil profile make it difficult to distinguish soil properties that may have resulted from pedogenesis from those properties inherited from the presumed parent material. Soil structure and clay films are two distinct morphological features that are clearly pedogenic (Reckendorf and Parsons, 1966). These features are extremely useful when attempting to recognize these types of separations within a soil profile. In this survey area, the Low Brateng surface typically is at an elevation

of 250 to 400 feet and the High Brateng surface is typically is at an elevation of 300 to 700 feet, although it may be at an elevation of more than 900 feet.

Soils typically on the Low Brateng surface have glaciolacustrine deposits over a dense clay layer. Examples are the Linslaw and Santiam soils (Aquultic Haploxeralfs). The material over the dense clay layer typically is more than 20 inches thick. The areas near Oakridge Cemetery and Lewellyn Road and the higher area south of Evergreen Creek and west of Bellfountain Road are representative of this surface. The High Brateng surface is characterized by soils such as the Hazelair and Wellsdale series (Aquultic Haploxeralfs) and Willakenzie series (Ultic Haploxeralfs). The material over the dense clay layer is significantly thinner than that of the Low Brateng surface. Spring Hill in North Albany is representative of this surface.

Dolph Surface

The Dolph occurs well above the general elevation of the valley floor. The shoulders of valleys that graded to the Luckiamute unit are included in the Dolph surface. The parent material of the Dolph surface varies greatly. The surface is underlain by bedrock, weathered gravel, saprolite, or clay deposits. The Dolph surface is considered to be of middle Pleistocene age, based on its position on the landscape and the degree of weathering of the underlying material. Elevation commonly is 400 to 1,000 feet in the Corvallis, Lewisburg, Monroe, North Albany, and Philomath areas, but it ranges to 1,200 feet locally. Logsden Ridge, northeast of Lewisburg, is representative of the Dolph surface. This surface takes its name from Dolph Corner in Polk County.

Typical soils on the Dolph surface are the Dixonville series (Pachic Ultic Argixerolls), Dupee series (Aquultic Haploxeralfs), and Willazenzie and Goodin series (Ultic Haploxeralfs). The soils commonly are Alfisols or Mollisols and have an argillic horizon. Dupee soils are in concave and linear areas on toeslopes and footslopes (fig. 105).

Eola Surface

The Eola surface consists of erosional remnants of the oldest stable geomorphic surface. The crests and saddles of low foothills along the western margin of the Willamette Valley are representative of the Eola surface. Decker Ridge, south of Philomath; McCloskey Ridge, south of Dawson; and the hills southwest of Monroe are examples of this surface. This surface is gently sloping to steep; typical remnants have rounded hill and valley topography with as much as 150 feet of local relief. Hanging valleys are common. Slope typically ranges from 2 to 30 percent, and elevation generally ranges to about 1,500 feet. The surface takes its name from Eola Hills, west of Salem.

The Eola surface is considered to be middle to early Pleistocene age. It is assumed that this surface was quite extensive at one time; however, erosion during the late Pleistocene and Holocene removed much of this surface so that only small remnants remain (Balster and Parsons, 1968). Landforms of the Looney unit generally adjoin the Eola surface, joining it to younger, lower lying surfaces.

The Eola surface adjacent to the Willamette Valley is typified by Bellpine, Jory (fig. 106), Nekia, and Gelderman soils at an elevation of less than 1,500 feet. In the Coast Range Mountains, it is typified by Apt, Honeygrove, McDuff, and Peavine soils at an elevation of 300 to 1,300 feet. The soils are Ultisols (Humults); therefore, they represent the most advanced stage of weathering and leaching of bases. The Bellpine, Jory, Nekia, and Gelderman soils have a xeric soil moisture regime, and the Apt, Honeygrove, McDuff, and Peavine soils have a udic soil moisture regime.

Figure 105.—Typical area of the Dolph geomorphic surface. Willakenzie soils are in foreground, Dixonville and Gellatly soils are under trees at left, and Dupee and Goodin soils are in the middle distance and under the hazelnut orchard at right.

Figure 106.—Jory soils on the Eola geomorphic surface.

Looney Unit

The Looney unit has no particular age connotation; therefore, it is not considered to be a geomorphic surface. The terrain of the Looney unit is completely dissected and is dominantly very steep. Steep, broken topography mapped as the Looney unit may join any other two surfaces, or it may make up large areas of mountainous terrain so thoroughly dissected that no geomorphic surfaces are recognizable. Erosion is active on much of the Looney unit, and there are some areas of mass soil movement. Remnants of some of the oldest geomorphic surfaces are in the unit (Balster and Parsons, 1968).

The variability in age makes the Looney unit useful for geomorphic mapping of mountainous terrain. The Coast Range Mountains are considered to be in the Looney unit. This unit could be subdivided into several smaller geomorphic units if it were mapped at a larger scale. Three significant gradient breaks are apparent, and they correspond to stable slopes (0 to 30 percent), metastable slopes (30 to 60 percent), and active slopes (more than 60 percent) (Parsons, 1978; Parsons and Balster, 1966).

Below an elevation of about 1,500 feet, the Looney unit is represented by the Chehulpum and Witzel soils. The Chehulpum soils are shallow Ultic Haploxerolls and are on metastable slopes. A cambric horizon has developed in some areas where the soil material has been stable for sufficient time (Balster and Parsons, 1968; Balster and Parsons, 1965a). The Witzel soils are shallow Lithic Ultic Haploxerolls and commonly are on buttes and other steep or very steep, active hillslopes in the Willamette Valley (Balster and Parsons, 1966). In areas of the Looney unit where faulting has occurred, base-rich groundwater seeping from the faults or percolating through saprolite provides for enrichment of the base status of the soil profile and may result in black or very dark gray, somewhat poorly drained or poorly drained soils on active or metastable slopes (Parsons and Balster, 1966). Panther and Witham soils are examples.

The soils in the Coast Range Mountains that represent the Looney unit include Andisols and Inceptisols. Examples of soils of this unit that have a cryic soil temperature regime are the Luckiamute, Lurnick, Maryspeak, Mulkey, Valsetz, and Yellowstone series, all of which are at an elevation of about 3,000 to 4,100 feet. Examples of soils of this unit that have a frigid soil temperature regime are the Blodgett, Chintimini, Fiverivers, Burntwoods, and Giveout series, all of which are at an elevation of about 1,800 to 3,000 feet.

In areas where the surfaces are stable and the mean annual precipitation ranges from 60 to 80 inches, soils such as the Apt, Honeygrove, McDuff, and Peavine series have developed a strong argillic horizon. Blachly and Kilowan soils are more common on the metastable slopes in areas where the mean annual precipitation is 80 to 100 inches. The development of an argillic horizon in these soils is not apparent, and evidence of clay films may occur below a depth of 60 inches. Mesic and frigid soils such as those of the Blodgett, Chintimini, Klistan, Romanose, and Umpcoos series and cryic soils such as those of the Luckiamute, Lurnick, Maryspeak, Mulkey, Valsetz, and Yellowstone series are on steep or very steep, metastable and active slopes.

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Glossary

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Accretion [sedimentology]. The gradual increase or extension of land by natural forces acting over a long period of time, as on a flood plain by the accumulation of sediment deposited by a stream.

Actinomycetes. A group of organisms intermediate between bacteria and true fungi.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggradation. The building up of the earth's surface by deposition; specifically, the accumulation of material by any process in order to establish or maintain uniformity of grade or slope.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Anadromous. Fish species that migrate from the sea to spawn in freshwater. Offspring return to ocean where they spend most of their adult life.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquatic ecosystems. Any body of water, such as a stream, lake, or estuary, and all organisms and non-living components within it functioning as a natural system.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Atomic number (Z). Term used in chemistry and physics to represent the number of protons found in the nucleus of an atom.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of

soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Basin. A depressional area that has few, if any, surface drainage outlets.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Biogenic. That which came about as a result of the activities of living organisms; necessary for life processes.

Biological diversity. The full variety of living organisms and their assemblages. The genetic variation within and between populations of species, and the many processes that link organisms and their physical environment in ecological systems.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Breccia. Coarse grained, clastic rock composed of angular rock fragments commonly bonded by mineral cement in a finer grained matrix of varying composition and origin.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for

fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Cambium. The layer of tissue, between the bark and wood in woody plants, from which new wood and bark develops.

Canker diseases. Diseases characterized by cankers, or dead sections of bark on branches or main trunks of trees. Bark may be killed by mechanical injuries or by plant pathogens, particularly fungi and bacteria. Most plant pathogens are unable to penetrate bark directly but will quickly colonize wounded tissue. Canker diseases may cause extensive damage to trees if all of the bark in a particular area is dead, thus girdling a branch or main stem. Girdling results in death of all parts of the plant above the canker. Canker disease and cankers caused by mechanical injuries may not kill trees outright but can be sites for invasion of wood-rotting organisms.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity (CEC). Total amount of extractable bases that can be held by the soil, expressed in terms of centimoles per kilogram. Commonly is measured at a pH of 7.0 (neutrality) but may be measured at some other stated pH value. Soils that have a low CEC hold fewer cations and may require more frequent applications of fertilizer than soils that have a high CEC. The ability to retain cations reduces the hazard of groundwater pollution.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clastic. Pertaining to rock or sediment composed mainly of fragments derived from pre-existing rock or minerals and moved from their place of origin.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Climax species (vegetation). Plants in relatively stable plant communities that are in equilibrium with the environment and have good capacity to reproduce.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Cohesive forces. Forces that cause the holding together of a solid or liquid as a result of the attraction between like molecules.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Consociation map unit. Delineated areas on a soil map that are dominantly a single soil or miscellaneous area and similar soils.

Consumptive use. The water used by plants in transpiration and growth plus water vapor loss from adjacent soil or snow or from intercepted precipitation in any specified time, commonly expressed as equivalent depth of free water per unit of time. Consumptive use is primarily applied to a single type of vegetation in a given area and does not include evaporation from water surfaces in or adjacent to the area.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diagnostic horizons. Combinations of specific soil characteristics that are indicative of certain classes of soils. Those that occur at the soil surface are called epipedons, and those that occur below the soil surface are called diagnostic subsurface horizons.

Diorite. Coarse grained igneous rock of intermediate composition between that of granite or granodiorite and that of gabbro. Generally has about equal amounts of plagioclase feldspar and ferromagnesium minerals, such as hornblende, biotite, and pyroxene.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological habitat type. Area of land that has a unique combination of potential natural community, soil, landscape features, and climate and differs from other ecological types in its ability to produce vegetation and respond to management.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all

the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/ or proportion of species or in total production.

Edaphic. Of or relating to the soil.

Edge. Area where plant communities meet or where successional stages or vegetative conditions within plant communities come together.

Edge effect. The increased richness of flora and fauna occurring in the transition zone where two plant communities or successional stages meet and mix.

Effective cation-exchange capacity (ECEC). The sum of extractable bases plus aluminum expressed in terms of centimoles per kilogram of soil. It is determined for soils that have pH of less than 5.5. It is a measure of the cation-exchange capacity (CEC) at the natural pH of the soil. The difference between CEC-7 and ECEC for soils that have pH of less than 5.5 reflects the variable or pH dependent CEC. For example, those exchange sites that arise from wither organic matter or variable charge minerals, such as allophone, kaolinite, halloysite, or Fe oxides. In soils that have low pH, the ECEC more accurately reflects the actual soil CEC, whereas CEC-7 is not actually present in these soils under natural conditions but reflects what the CEC could become if the soils were limed and the pH increased to neutrality.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endemic. Restricted to or peculiar to a specific locality or area.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Feldspar. The most common minerals in the earth's crust. Feldspar contains silicon, aluminum, and oxygen, and it may contain potassium, calcium, and sodium.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Gabbro. Dark, coarse-grained basic igneous rock that is the approximate intrusive equivalent of basalt.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphic surface. A mappable area of the earth's surface that has a common history; the area is of similar age and is formed by a set of processes during an episode of landform evolution.

Geomorphology. The study of the classification, description, nature, origin, and development of landforms and their relationship to underlying structures and the history of geologic changes as recorded by these surface features.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Granodiorite. Granitic rock of intermediate composition between that of granite and diorite.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock 2 millimeters to 7.6 centimeters in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hanging valley. A tributary valley whose floor at the lower end is notably higher than the floor of the main valley in the area of their junction.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Hillslope. The steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of the hill.

Holocene. The epoch of the Quaternary period of geologic time, extending from the end of the Pleistocene (about 10 to 12 thousand years ago) to the present.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Hydrophytic vegetation. The total macrophytic (flowering plants larger than microscopic) plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Indurated. Refers to having a hard, brittle consistency as a result of particles being held together by cementing substances such as silica, calcium carbonate, and iron. An indurated layer can be broken by a sharp blow of a hammer.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Isotopes. Forms of a chemical element in which nuclei have the same atomic number Z, but a different atomic mass.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Life form. A group of wildlife species whose requirements for habitat are satisfied by similar successional stages within a given ecological community.

Light textured soil. Sand or loamy sand.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithologic discontinuity. A significant change in particle size distribution or mineralogy that indicates a difference in the material from which the soil horizon formed.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Macropores. Large pores that control permeability and aeration of a soil. These include earthworm and root channels. They are large enough that water moves

through rapidly by gravity, allowing rainfall and irrigation water to infiltrate into the soil and excess water to drain through the soil.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Matrix. The most extensive and most connected landscape element type present, which plays the dominant role in landscape functioning. Also, a landscape element surrounding an area of vegetation.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Micropores. Fine soil pores, typically a fraction of a millimeter in diameter. They are responsible for the available water capacity of soil through capillary forces. Much of the water held in micropores is available to plants; however, some is held so tightly that it cannot be used by plant roots.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If

formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Overland flow. Water that runs across the land after rainfall, either before it enters a watercourse or after it leaves a watercourse as floodwater or after it rises to the surface naturally from underground.

Oxidation. Any chemical reaction that removes electrons from a molecule or atom.

Paleosol. A soil that formed on a landscape in the past that has distinctive morphological features resulting from a soil-forming environment that no longer exists.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Pararock fragments. Unattached, cemented bodies or pieces of material 2 millimeters in diameter or larger that are extremely weakly cemented to moderately cemented. These fragments are not retained on sieves because the samples are prepared by grinding.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedogenesis. The processes of formation and development of soils.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plagioclase feldspar. A feldspar that contains sodium and/or calcium in addition to aluminum, silicon, and oxygen.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Pleistocene. The epoch of the Quaternary period of geologic time following the Pliocene and preceding the Holocene (approximately 2 million to 10 to 12 thousand years ago).

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Point bar deposits. Material accumulated on one of a series of arclike ridges of sand and gravel developed on the inside of a growing meander by the slow addition of individual accretions accompanying migration of the stream channel toward the outer bank.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Puddling. Compaction of the soil surface during wet periods to the point that the soil particles are rearranged to a massive state.

Pyroxene. A group of dark, rock-forming silicate minerals containing varying amounts of calcium, sodium, magnesium, iron, and aluminum.

Radiocarbon dating. A scientific method involving the use of the naturally occurring isotope of carbon-14 to determine the age of organic material as much as 50,000 years old.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Reduction. Any chemical reaction in which there is uptake of an electron by a molecule or atom.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth’s surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Riparian. Refers to areas adjacent to water or wetlands; vegetation is dependent on water or use and management directly impacts the water or wetlands.

Riverine. The environment that consists of all navigable rivers of interest.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Salmonid. Any species within the family of ray-finned bony fishes, such as salmon and trout, whose last three vertebrae on their spinal column are upturned.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand splay. A fan-shaped or other outspread area that has formed as a result of an overloaded stream breaking through a natural or artificial levee and depositing sandy material on the flood plain.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturated hydraulic conductivity (Ksat). The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are *very high*, 100 or more micrometers per second (14.17 or more inches per hour); *high*, 10 to 100 micrometers per second (1.417 to 14.17 inches per hour); *moderately high*, 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour); *moderately low*, 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour); *low*, 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour); and *very low*, less than 0.01 micrometer per second (less than 0.001417 inch per hour). To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Savanna. A plant community or vegetation type that consists dominantly of grasses with scattered, drought-resistant trees.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Seasonal water table. Refers to a water table that fluctuates or varies with the seasons of the year or with precipitation events.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Seral. Refers to the relative transitory aggregation of plants and animals within a sere; a preclimax stage of succession.

Seral species. A species associated with the early or middle stages of ecological succession.

Seral stand. A vegetative community composed of seral species.

Sere. The stages in an ecological succession.

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a given series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Silvicultural. Related to silviculture, a forestry science, that involves the growing and tending of trees and forests.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skeletal soil. A soil that has 35 percent rock fragments or more, by volume, in the particle-size control section.

Skid trail. A trail or furrow made by a log or logs skidding over the ground surface.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	3 to 12 percent
Strongly sloping	12 to 30 percent
Steep	30 to 60 percent
Very steep	60 percent and higher

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil aggregates. The many soil particles held together in a single mass or cluster, such as a clod, crumb, block, or prism.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strata. Collectively, the rock layers of a geologic formation that consist of approximately the same kind of rock material throughout.

Stratigraphy. The branch of geology that deals with the definition and interpretation of layered earth material; the conditions of their formation; their character, arrangement, sequence, age, and distribution; and especially their correlation by the use of fossils and other means. The term is applied both to the sum of the characteristics and a study of the characteristics.

Structural diversity. The wide assortment in vegetative communities as it relates to their physical elements of structure.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with

rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Structure, vegetative. The various horizontal and vertical physical elements of the vegetation.

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Syncline. A unit of folded strata that is concave upward.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Tectonic processes. Pertaining to the forces and processes of rock deformation, including folding, faulting, and uplift, that take place in the earth’s crust.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Thrust fault. A reverse fault in which the dip of the fault plane is at a low angle to horizontal.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are

constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Transpiration. A continuous process caused by the evaporation of water from the leaves of plants and its corresponding uptake from roots in the soil.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Unconsolidated material. Loose, unattached, unstratified particles of earth material, such as gravel, sand, or sediment, that does not have combined rigidity or cohesiveness because of the lack of binding or natural mineral cementation to hold it together.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Valley side alluvium. A concave slopewash deposit at the base of a hillslope, mountain slope, or terrace escarpment that may or may not include the alluvial toeslope.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Vegetative site. A distinctive area that produces a characteristic natural plant community that differs from natural plant communities on other vegetative sites in kind, amount, and proportion of forage plants.

Vertebrates. Animals that have a backbone, including mammals, birds, reptiles, amphibians, and fishes.

Vertical structure. The configuration of elements, parts, or constituents of a habitat, plant or animal community, or forest stand in a vertical orientation.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Hyslop Farm, Oregon State University, Corvallis, Oregon [1862])

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	46.2	33.6	39.9	61	17	80	6.46	3.11	9.35	12	1.1
February----	50.4	35.4	42.9	64	19	116	5.71	3.23	7.90	12	2.1
March-------	55.6	37.6	46.6	71	25	211	4.59	2.99	6.04	12	0.1
April-------	60.2	39.9	50.0	79	29	300	2.98	1.75	4.07	8	0.0
May---------	66.6	44.0	55.3	88	32	474	2.30	1.21	3.29	6	0.0
June--------	72.9	48.5	60.7	94	37	619	1.46	0.74	2.08	4	0.0
July--------	80.6	51.8	66.2	100	41	813	0.57	0.10	0.93	1	0.0
August------	81.7	51.5	66.6	101	41	826	0.73	0.00	1.28	2	0.0
September---	76.4	48.2	62.3	96	35	669	1.47	0.31	2.40	3	0.0
October-----	64.8	41.8	53.3	86	29	414	3.02	1.29	4.49	7	0.0
November----	52.3	38.0	45.2	67	23	178	6.94	3.70	9.79	13	0.2
December----	45.7	33.8	39.8	61	15	79	7.43	4.14	10.34	12	1.3
Yearly:											
Average---	62.8	42.0	52.4	---	---	---	---	---	---	---	---
Extreme---	108	-7	---	102	10	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,779	43.65	35.33	51.55	92	4.8

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Hyslop Farm, Oregon State University, Corvallis, Oregon [1862])

Probability	Temperature		
	24 ^{O}F or lower	28 ^{O}F or lower	32 ^{O}F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	February 18	April 4	May 10
2 years in 10 later than--	February 10	March 22	May 3
5 years in 10 later than--	January 24	February 27	April 20
First freezing temperature in fall:			
1 year in 10 earlier than--	November 19	October 22	October 3
2 years in 10 earlier than--	December 2	November 2	October 12
5 years in 10 earlier than--	December 28	November 22	October 27

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Hyslop Farm, Oregon State University, Corvallis, Oregon [1862])

Probability	Daily minimum temperature during growing season		
	Higher than 24 ^{O}F	Higher than 28 ^{O}F	Higher than 32 ^{O}F
	Days	*Days*	*Days*
9 years in 10	287	215	157
8 years in 10	306	233	168
5 years in 10	349	267	189
2 years in 10	>365	302	211
1 year in 10	>365	319	222

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1	Abiqua silty clay loam, 0 to 3 percent slopes	417	*
2	Abiqua silty clay loam, 3 to 5 percent slopes	545	0.1
3	Abiqua silty clay loam, high precipitation, 0 to 3 percent slopes	879	0.2
4	Abiqua silty clay loam, high precipitation, 3 to 5 percent slopes	603	0.1
5	Abiqua silty clay loam, rarely flooded, 0 to 3 percent slopes	69	*
6	Alsea loam, 0 to 5 percent slopes	670	0.2
7	Alsea loam, rarely flooded, 0 to 3 percent slopes	469	0.1
8	Amity silt loam, 0 to 3 percent slopes	5,797	1.3
9	Apt-McDuff complex, 5 to 30 percent slopes	12,998	3.0
10	Apt-McDuff complex, 30 to 50 percent slopes	7,399	1.7
11	Aquents, 0 to 3 percent slopes	235	*
12	Awbrig silty clay loam, 0 to 2 percent slopes	2,340	0.5
13	Bashaw clay, 3 to 12 percent slopes	142	*
14	Bashaw clay, flooded, 0 to 3 percent slopes	1,428	0.3
15	Bashaw clay, nonflooded, 0 to 3 percent slopes	1,277	0.3
16	Bashaw silty clay loam, nonflooded, 0 to 3 percent slopes	814	0.2
17	Bellpine-Jory complex, 2 to 12 percent slopes	2,742	0.6
18	Bellpine-Jory complex, 12 to 20 percent slopes	6,426	1.5
19	Bellpine-Jory complex, 20 to 30 percent slopes	5,360	1.2
20	Bellpine-Jory complex, 30 to 60 percent slopes	7,399	1.7
21	Blachly-Kilowan complex, 5 to 30 percent slopes	988	0.2
22	Blachly-Kilowan complex, 30 to 60 percent slopes	459	0.1
23	Bohannon-Preacher complex, 30 to 60 percent slopes	10,946	2.5
24	Bohannon-Preacher complex, 60 to 90 percent slopes	2,432	0.6
25	Briedwell gravelly loam, 0 to 7 percent slopes	921	0.2
26	Briedwell gravelly loam, 7 to 20 percent slopes	124	*
27	Burntwoods-Oldblue complex, 30 to 60 percent slopes	1,690	0.4
28	Camas gravelly sandy loam, 0 to 3 percent slopes	877	0.2
29	Camas gravelly sandy loam, relict bar, 0 to 3 percent slopes	1,295	0.3
30	Caterl-Laderly-Romanose complex, 30 to 60 percent slopes	3,370	0.8
31	Caterl-Laderly-Romanose complex, 60 to 90 percent slopes	2,199	0.5
32	Caterl-Murtip-Giveout complex, 30 to 60 percent slopes	1,480	0.3
33	Caterl-Murtip-Laderly complex, 30 to 60 percent slopes	2,643	0.6
34	Chapman loam, 0 to 3 percent slopes	1,820	0.4
35	Chapman loam, high precipitation, 0 to 3 percent slopes	177	*
36	Chehalem silty clay loam, 0 to 3 percent slopes	420	*
37	Chehalem silty clay loam, 3 to 12 percent slopes	111	*
38	Chehalis silt loam, 0 to 3 percent slopes	1,536	0.4
39	Chehalis silt loam, high precipitation, 0 to 3 percent slopes	482	0.1
40	Chehalis silty clay loam, 0 to 3 percent slopes	10,714	2.5
41	Chintimini-Blodgett complex, 60 to 90 percent slopes	727	0.2
42	Chintimini-Blodgett-Fiverivers complex, 30 to 60 percent slopes	1,309	0.3
43	Chintimini-Grassmountain complex, 5 to 30 percent slopes	300	*
44	Chismore-Pyburn complex, 0 to 3 percent slopes	121	*
45	Chismore-Pyburn complex, 3 to 12 percent slopes	239	*
46	Cloquato silt loam, 0 to 3 percent slopes	3,361	0.8
47	Cloquato silt loam, high precipitation, 0 to 3 percent slopes	49	*
48	Coburg complex, rarely and occasionally flooded, 0 to 3 percent slopes	611	0.1
49	Coburg silty clay loam, 0 to 3 percent slopes	2,449	0.6
50	Coburg silty clay loam, rarely flooded, 0 to 3 percent slopes	2,214	0.5
51	Concord silt loam, 0 to 2 percent slopes	1,242	0.3
52	Conser silty clay loam, 0 to 3 percent slopes	5,317	1.2
53	Dayton silt loam, 0 to 2 percent slopes	11,933	2.7
54	Dayton silt loam, clay substratum, 0 to 2 percent slopes	579	0.1
55	Digger-Bohannon complex, 5 to 30 percent slopes	3,281	0.8
56	Digger-Remote-Umpcoos complex, 30 to 60 percent slopes	8,486	2.0
57	Digger-Umpcoos-Remote complex, 60 to 90 percent slopes	5,541	1.3
58	Dixonville-Gellatly complex, 12 to 30 percent slopes	11,084	2.6
59	Dixonville-Gellatly complex, 30 to 60 percent slopes	4,009	0.9
60	Dixonville-Gellatly-Witham complex, 2 to 12 percent slopes	4,142	1.0
61	Dupee silt loam, 3 to 12 percent slopes	2,895	0.7

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
62	Dupee silt loam, 12 to 20 percent slopes	52	*
63	Elsie silt loam, 0 to 7 percent slopes	1,855	0.4
64	Elsie silt loam, 7 to 15 percent slopes	439	0.1
65	Fiverivers-Grassmountain-Chintimini complex, 30 to 60 percent slopes	1,980	0.5
66	Fluvents-Fluvaquents complex, 0 to 3 percent slopes	1,634	0.4
67	Fluvents-Fluvaquents complex, high precipitation, 0 to 3 percent slopes	185	*
68	Formader-Hemcross complex, 3 to 35 percent slopes	3,212	0.7
69	Formader-Hemcross complex, 35 to 60 percent slopes	2,317	0.5
70	Formader-Klistan-Hemcross complex, 60 to 80 percent slopes	857	0.2
71	Gelderman-Jory complex, 2 to 12 percent slopes	35	*
72	Goodin-Dupee-Chehulpum complex, 2 to 12 percent slopes	423	*
73	Goodin-Dupee-Chehulpum complex, 12 to 20 percent slopes	666	0.2
74	Grassmountain-Fiverivers-Chintimini complex, 5 to 30 percent slopes	827	0.2
75	Harslow-Kilchis-Rock outcrop complex, 60 to 90 percent slopes	1,185	0.3
76	Harslow-Klistan-Rock outcrop complex, 60 to 90 percent slopes	1,074	0.2
77	Hazelair silty clay loam, 2 to 12 percent slopes	47	*
78	Hazelair silty clay loam, 12 to 20 percent slopes	13	*
79	Hazelair silty clay loam, 20 to 30 percent slopes	31	*
80	Hazelair silty clay loam, 7 to 20 percent slopes	36	*
81	Helmick silt loam, 3 to 12 percent slopes	550	0.1
82	Helvetia silt loam, 2 to 7 percent slopes	82	*
83	Hemcross-Klistan complex, 5 to 30 percent slopes	1,736	0.4
84	Hemcross-Klistan complex, 30 to 60 percent slopes	5,070	1.2
85	Holcomb silt loam, 0 to 3 percent slopes	862	0.2
86	Honeygrove-Peavine complex, 3 to 30 percent slopes	15,067	3.5
87	Honeygrove-Peavine complex, 30 to 60 percent slopes	6,338	1.5
88	Honeygrove-Peavine complex, basalts, 3 to 30 percent slopes	3,673	0.8
89	Honeygrove-Peavine complex, basalts, 30 to 60 percent slopes	1,721	0.4
90	Honeygrove-Shivigny complex, 3 to 30 percent slopes	5,519	1.3
91	Jory silty clay loam, basalt bedrock, 2 to 12 percent slopes	4,955	1.1
92	Jory silty clay loam, basalt bedrock, 12 to 20 percent slopes	2,974	0.7
93	Jory silty clay loam, basalt bedrock 20 to 30 percent slopes	540	0.1
94	Jory silty clay loam, sedimentary bedrock, 2 to 12 percent slopes	4,730	1.1
95	Jory silty clay loam, sedimentary bedrock, 12 to 20 percent slopes	8,078	1.9
96	Jory silty clay loam, sedimentary bedrock, 20 to 30 percent slopes	4,294	1.0
97	Jory-Dupee complex, 2 to 12 percent slopes	918	0.2
98	Jory-Gelderman complex, 12 to 30 percent slopes	20,155	4.6
99	Jory-Nekia complex, 12 to 20 percent slopes	675	0.2
100	Jory-Nekia complex, 20 to 30 percent slopes	396	*
101	Kirkendall-Nekoma-Quosatana complex, 0 to 3 percent slopes	2,139	0.5
102	Klistan-Harslow complex, 30 to 60 percent slopes	3,780	0.9
103	Klistan-Harslow-Hemcross complex, 5 to 30 percent slopes	1,920	0.4
104	Laderly-Murtip-Giveout complex, 5 to 30 percent slopes	1,851	0.4
105	Linslaw loam, 0 to 3 percent slopes	84	*
106	Linslaw loam, 3 to 8 percent slopes	158	*
107	Lurnick-Luckiamute complex, 60 to 90 percent slopes	144	*
108	Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes	252	*
109	MacDunn-Price-Ritner complex, 60 to 90 percent slopes	1,088	0.3
110	Malabon silty clay loam, 0 to 3 percent slopes	3,439	0.8
111	Malabon silty clay loam, rarely flooded, 0 to 3 percent slopes	2,275	0.5
112	Maryspeak gravelly medial sandy loam, 5 to 30 percent slopes	117	*
113	McAlpin silty clay loam, 0 to 3 percent slopes	3,357	0.8
114	McAlpin silty clay loam, 3 to 6 percent slopes	436	0.1
115	McAlpin silty clay loam, high precipitation, 0 to 3 percent slopes	292	*
116	McAlpin silty clay loam, high precipitation, 3 to 6 percent slopes	218	*
117	McAlpin silty clay loam, rarely flooded, 0 to 3 percent slopes	693	0.2
118	McBee silty clay loam, 0 to 3 percent slopes	1,520	0.3
119	McBee silty clay loam, nonflooded, 0 to 3 percent slopes	599	0.1
120	Meda-Treharne-Wasson complex, 2 to 20 percent slopes	4,048	0.9
121	Mulkey medial loam, 3 to 30 percent slopes	267	*
122	Mulkey medial loam, 30 to 60 percent slopes	129	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
123	Murtip-Giveout-Laderly complex, 5 to 30 percent slopes	2,727	0.6
124	Nekoma-Fluvaquents complex, 0 to 3 percent slopes	2,127	0.5
125	Newberg fine sandy loam, 0 to 3 percent slopes	1,609	0.4
126	Newberg fine sandy loam, high precipitation, 0 to 3 percent slopes	120	*
127	Newberg loam, 0 to 3 percent slopes	4,208	1.0
128	Oldblue-Burntwoods complex, 5 to 30 percent slopes	2,094	0.5
129	Panther silty clay loam, 2 to 12 percent slopes	19	*
130	Pengra silt loam, 2 to 12 percent slopes	936	0.2
131	Philomath silty clay loam, 3 to 12 percent slopes	399	*
132	Pilchuck fine sandy loam, 0 to 3 percent slopes	613	0.1
133	Pits	717	0.2
134	Preacher-Blachly-Bohannon complex, 5 to 30 percent slopes	1,470	0.3
135	Preacher-Bohannon complex, 5 to 35 percent slopes	7,013	1.6
136	Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes	14,629	3.4
137	Price-MacDunn-Ritner complex, 30 to 60 percent slopes	22,810	5.2
138	Riverwash	810	0.2
139	Salem gravelly silt loam, 0 to 3 percent slopes	393	*
140	Santiam silt loam, 2 to 8 percent slopes	5,057	1.2
141	Santiam silt loam, 8 to 20 percent slopes	1,281	0.3
142	Sevencedars-Newanna complex, 60 to 90 percent slopes	217	*
143	Sevencedars-Newanna-Woodspoint complex, 5 to 30 percent slopes	80	*
144	Sevencedars-Newanna-Woodspoint complex, 30 to 60 percent slopes	215	*
145	Shivigny-Honeygrove complex, 30 to 60 percent slopes	4,713	1.1
146	Slickrock gravelly medial loam, 3 to 25 percent slopes	6,424	1.5
147	Steiwer-Chehulpum complex, 3 to 12 percent slopes	50	*
148	Steiwer-Chehulpum complex, 12 to 30 percent slopes	134	*
149	Steiwer-Chehulpum complex, 30 to 60 percent slopes	20	*
150	Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes	3,460	0.8
151	Valsetz-Yellowstone complex, 3 to 30 percent slopes	286	*
152	Valsetz-Yellowstone complex, 30 to 60 percent slopes	430	*
153	Valsetz-Yellowstone complex, 60 to 90 percent slopes	232	*
154	Verboort silty clay loam, 0 to 3 percent slopes	411	*
155	Waldo silty clay loam, 0 to 3 percent slopes	9,054	2.1
156	Waldo silty clay loam, high precipitation, 0 to 3 percent slopes	196	*
157	Wapato silty clay loam, 0 to 3 percent slopes	1,463	0.3
158	Wapato silty clay loam, high precipitation, 0 to 3 percent slopes	34	*
159	Water	2,930	0.7
160	Wellsdale-Willakenzie complex, 20 to 30 percent north slopes	66	*
161	Wellsdale-Willakenzie-Dupee complex, 2 to 12 percent slopes	2,280	0.5
162	Wellsdale-Willakenzie-Dupee complex, 12 to 20 percent north slopes	661	0.2
163	Willakenzie loam, 2 to 12 percent slopes	1,352	0.3
164	Willakenzie loam, 12 to 20 percent slopes	990	0.2
165	Willakenzie loam, 20 to 30 percent slopes	920	0.2
166	Willakenzie loam, 30 to 60 percent slopes	256	*
167	Willakenzie-Wellsdale complex, 12 to 20 percent south slopes	951	0.2
168	Willakenzie-Wellsdale complex, 20 to 30 percent south slopes	26	*
169	Willamette silt loam, 0 to 3 percent slopes	3,178	0.7
170	Willamette silt loam, 3 to 12 percent slopes	3,071	0.7
171	Willamette silt loam, 12 to 20 percent slopes	33	*
172	Witham silty clay loam, 2 to 12 percent slopes	3,069	0.7
173	Witham silty clay loam, 12 to 20 percent slopes	171	*
174	Witzel-Ritner complex, 3 to 12 percent slopes	222	*
175	Witzel-Ritner complex, 12 to 30 percent slopes	814	0.2
176	Witzel-Ritner complex, 30 to 60 percent slopes	1,403	0.3
177	Woodburn silt loam, 0 to 3 percent slopes	8,181	1.9
178	Woodburn silt loam, 3 to 12 percent slopes	680	0.2
179	Woodburn silt loam, 12 to 20 percent slopes	53	*
180	Woodburn silt loam, 20 to 55 percent slopes	174	*
	Total	434,521	100.0

* Less than 0.1 percent.

Table 5.--Land Capability Classification and Yields per Acre

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
1:												
Abiqua-------------	1	1	---	9.50	---	85.00	11.50	16.00	1,450.00	---	95.00	---
2:												
Abiqua-------------	2e	2e	---	9.50	---	85.00	11.50	16.00	1,450.00	---	95.00	---
3:												
Abiqua, high precipitation-----	2c	2c	---	---	---	---	10.00	14.50	900.00	---	100.00	---
4:												
Abiqua, high precipitation-----	2e	2e	---	---	---	---	10.00	14.50	900.00	---	100.00	---
5:												
Abiqua, rarely flooded-----------	2w	2w	---	9.50	---	85.00	11.50	16.00	1,450.00	---	95.00	---
6:												
Alsea--------------	2w	2w	---	9.00	---	---	10.50	15.00	900.00	---	100.00	---
7:												
Alsea, rarely flooded-----------	2w	2w	---	9.00	---	---	10.50	15.00	900.00	---	100.00	---
8:												
Amity--------------	2w	2w	---	9.50	---	---	11.00	16.00	1,400.00	---	95.00	---
9:												
Apt----------------	6e	---	---	---	---	---	---	---	---	---	---	---
McDuff-------------	6e	---	---	---	---	---	---	---	---	---	---	---
10:												
Apt----------------	6e	---	---	---	---	---	---	---	---	---	---	---
McDuff-------------	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability N	Land capability I	Sweet corn N	Sweet corn I	Distillate mint N	Distillate mint I	Pasture N	Pasture I	Perennial ryegrass seed N	Perennial ryegrass seed I	Winter wheat N	Winter wheat I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
11:												
Aquents	7w	---	---	---	---	---	---	---	---	---	---	---
12:												
Awbrig	4w	4w	---	---	---	---	3.50	6.00	400.00	---	---	---
13:												
Bashaw, nonflooded	4w	4w	---	---	---	---	8.00	12.00	---	---	---	---
14:												
Bashaw, flooded	4w	4w	---	---	---	---	8.00	12.00	---	---	---	---
15:												
Bashaw, nonflooded	4w	4w	---	---	---	---	8.00	12.00	---	---	---	---
16:												
Bashaw, nonflooded	4w	4w	---	---	---	---	2.00	12.00	---	---	---	---
17:												
Bellpine	3e	3e	---	7.50	---	---	7.50	12.50	950.00	---	65.00	---
Jory, sedimentary bedrock	2e	2e	---	8.00	---	---	9.00	13.50	1,150.00	---	75.00	---
18:												
Bellpine	3e	---	---	---	---	---	7.00	---	900.00	---	60.00	---
Jory, sedimentary bedrock	3e	---	---	---	---	---	9.00	---	1,100.00	---	75.00	---
19:												
Bellpine	4e	---	---	---	---	---	6.50	---	800.00	---	55.00	---
Jory, sedimentary bedrock	4e	---	---	---	---	---	8.00	---	1,000.00	---	65.00	---
20:												
Bellpine	6e	---	---	---	---	---	5.00	---	---	---	---	---
Jory, sedimentary bedrock	6e	---	---	---	---	---	6.50	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
21:												
Blachly------------	6e	---	---	---	---	---	---	---	---	---	---	---
Kilowan------------	6e	---	---	---	---	---	---	---	---	---	---	---
22:												
Blachly------------	6e	---	---	---	---	---	---	---	---	---	---	---
Kilowan------------	6e	---	---	---	---	---	---	---	---	---	---	---
23:												
Bohannon-----------	6e	---	---	---	---	---	---	---	---	---	---	---
Preacher-----------	6e	---	---	---	---	---	---	---	---	---	---	---
24:												
Bohannon-----------	7e	---	---	---	---	---	---	---	---	---	---	---
Preacher-----------	7e	---	---	---	---	---	---	---	---	---	---	---
25:												
Briedwell----------	3e	3e	---	9.00	---	---	6.50	15.00	800.00	---	55.00	---
26:												
Briedwell----------	4e	---	---	---	---	---	5.50	---	700.00	---	45.00	---
27:												
Burntwoods---------	6e	---	---	---	---	---	---	---	---	---	---	---
Oldblue------------	6e	---	---	---	---	---	---	---	---	---	---	---
28:												
Camas--------------	4w	4w	---	6.00	---	50.00	---	10.00	---	1,200.00	---	---
29:												
Camas, rarely flooded-----------	4w	4w	---	6.00	---	50.00	---	10.00	---	1,200.00	---	---
30:												
Caterl-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Laderly------------	6e	---	---	---	---	---	---	---	---	---	---	---
Romanose-----------	7e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
31:												
Caterl-------------	7e	---	---	---	---	---	---	---	---	---	---	---
Laderly------------	7e	---	---	---	---	---	---	---	---	---	---	---
Romanose-----------	7e	---	---	---	---	---	---	---	---	---	---	---
32:												
Caterl-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Murtip-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Giveout------------	6e	---	---	---	---	---	---	---	---	---	---	---
33:												
Caterl-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Murtip-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Laderly------------	6e	---	---	---	---	---	---	---	---	---	---	---
34:												
Chapman------------	1	1	---	10.00	---	90.00	11.50	17.00	1,450.00	2,050.00	95.00	---
35:												
Chapman, high precipitation-----	2c	2c	---	---	---	---	10.00	15.50	---	---	100.00	---
36:												
Chehalem-----------	2w	2w	---	9.00	---	---	10.00	15.00	1,250.00	---	85.00	---
37:												
Chehalem-----------	3e	3e	---	8.50	---	---	9.00	14.00	1,150.00	---	75.00	---
38:												
Chehalis-----------	2w	2w	---	9.50	---	85.00	12.00	16.50	1,500.00	2,000.00	100.00	---
39:												
Chehalis, high precipitation-----	2w	2w	---	9.00	---	---	10.50	15.00	---	---	85.00	---
40:												
Chehalis-----------	2w	2w	---	9.50	---	85.00	12.00	16.50	1,500.00	2,000.00	100.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
41:												
Chintimini----------	7e	---	---	---	---	---	---	---	---	---	---	---
Blodgett------------	7e	---	---	---	---	---	---	---	---	---	---	---
42:												
Chintimini----------	6e	---	---	---	---	---	---	---	---	---	---	---
Blodgett------------	7e	---	---	---	---	---	---	---	---	---	---	---
Fiverivers----------	6e	---	---	---	---	---	---	---	---	---	---	---
43:												
Chintimini----------	6e	---	---	---	---	---	---	---	---	---	---	---
Grassmountain-------	6e	---	---	---	---	---	---	---	---	---	---	---
44:												
Chismore------------	3w	3w	---	---	---	---	6.00	10.00	---	---	---	---
Pyburn--------------	4w	4w	---	---	---	---	3.00	6.00	---	---	---	---
45:												
Chismore------------	4e	4e	---	---	---	---	6.00	10.00	---	---	---	---
Pyburn--------------	4w	4w	---	---	---	---	3.00	6.00	---	---	---	---
46:												
Cloquato------------	2w	2w	---	9.50	---	85.00	11.50	16.50	1,450.00	2,000.00	95.00	---
47:												
Cloquato, high precipitation-----	2w	2w	---	---	---	---	10.00	15.00	---	---	90.00	---
48:												
Coburg, occasionally flooded-----------	2w	2w	---	9.00	---	80.00	11.00	15.50	1,350.00	---	90.00	---
Coburg, rarely flooded-----------	2w	2w	---	9.50	---	80.00	10.00	18.00	1,400.00	---	100.00	---
49:												
Coburg--------------	2w	2w	---	9.50	---	80.00	11.00	16.00	1,400.00	---	95.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability N	Land capability I	Sweet corn N	Sweet corn I	Distillate mint N	Distillate mint I	Pasture N	Pasture I	Perennial ryegrass seed N	Perennial ryegrass seed I	Winter wheat N	Winter wheat I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
50:												
Coburg, rarely flooded-----------	2w	2w	---	9.50	---	80.00	11.00	16.00	1,400.00	---	95.00	---
51:												
Concord------------	3w	3w	---	7.00	---	---	7.50	12.00	950.00	---	65.00	---
52:												
Conser-------------	3w	3w	---	7.00	---	---	7.50	12.00	950.00	---	65.00	---
53:												
Dayton-------------	4w	4w	---	6.50	---	---	5.50	10.50	700.00	---	45.00	---
54:												
Dayton, clay substratum--------	4w	4w	---	---	---	---	5.50	10.50	700.00	---	---	---
55:												
Digger-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Bohannon-----------	6e	---	---	---	---	---	---	---	---	---	---	---
56:												
Digger-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Remote-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Umpcoos------------	7e	---	---	---	---	---	---	---	---	---	---	---
57:												
Digger-------------	7e	---	---	---	---	---	---	---	---	---	---	---
Umpcoos------------	7e	---	---	---	---	---	---	---	---	---	---	---
Remote-------------	7e	---	---	---	---	---	---	---	---	---	---	---
58:												
Dixonville---------	4e	---	---	---	---	---	7.50	---	950.00	---	65.00	---
Gellatly-----------	4e	---	---	---	---	---	9.50	---	1,200.00	---	80.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
59:												
Dixonville----------	6e	---	---	---	---	---	6.50	---	---	---	---	---
Gellatly-----------	6e	---	---	---	---	---	8.50	---	---	---	---	---
60:												
Dixonville----------	3e	3e	---	8.50	---	---	9.00	14.50	1,150.00	---	75.00	---
Gellatly-----------	2e	2e	---	9.00	---	---	11.00	15.00	1,400.00	---	90.00	---
Witham-------------	3e	4e	---	3.00	---	---	3.50	5.00	400.00	---	30.00	---
61:												
Dupee--------------	3e	2e	---	7.50	---	---	9.00	13.00	1,050.00	---	75.00	---
62:												
Dupee--------------	4e	---	---	---	---	---	8.50	---	1,050.00	---	70.00	---
63:												
Elsie--------------	3e	3e	---	---	---	---	14.00	16.00	---	---	---	---
64:												
Elsie--------------	4e	4e	---	---	---	---	14.00	16.00	---	---	---	---
65:												
Fiverivers---------	6e	---	---	---	---	---	---	---	---	---	---	---
Grassmountain------	6e	---	---	---	---	---	---	---	---	---	---	---
Chintimini---------	6e	---	---	---	---	---	---	---	---	---	---	---
66:												
Fluvents-----------	7w	---	---	---	---	---	---	---	---	---	---	---
Fluvaquents--------	7w	---	---	---	---	---	---	---	---	---	---	---
67:												
Fluvents, high precipitation-----	7w	---	---	---	---	---	---	---	---	---	---	---
Fluvaquents, high precipitation-----	7w	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
68:												
Formader-----------	6e	---	---	---	---	---	---	---	---	---	---	---
Hemcross-----------	6e	---	---	---	---	---	---	---	---	---	---	---
69:												
Formader-----------	6e	---	---	---	---	---	---	---	---	---	---	---
Hemcross-----------	6e	---	---	---	---	---	---	---	---	---	---	---
70:												
Formader-----------	7e	---	---	---	---	---	---	---	---	---	---	---
Klistan------------	7e	---	---	---	---	---	---	---	---	---	---	---
Hemcross-----------	7e	---	---	---	---	---	---	---	---	---	---	---
71:												
Gelderman----------	3e	---	---	---	---	---	---	---	---	---	---	---
Jory, basalt bedrock-----------	2e	---	---	---	---	---	---	---	---	---	---	---
72:												
Goodin-------------	3e	3e	---	---	---	---	9.00	14.00	1,100.00	---	75.00	---
Dupee--------------	3e	2e	---	---	---	---	9.00	13.00	1,150.00	---	75.00	---
Chehulpum----------	6e	6e	---	---	---	---	8.50	11.00	1,000.00	---	65.00	---
73:												
Goodin-------------	3e	---	---	---	---	---	8.50	---	1,050.00	---	70.00	---
Chehulpum----------	6e	---	---	---	---	---	7.50	---	950.00	---	60.00	---
Dupee--------------	4e	---	---	---	---	---	8.50	---	1,050.00	---	70.00	---
74:												
Grassmountain------	6e	---	---	---	---	---	---	---	---	---	---	---
Fiverivers---------	6e	---	---	---	---	---	---	---	---	---	---	---
Chintimini---------	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
75:												
Harslow------------	7e	---	---	---	---	---	---	---	---	---	---	---
Kilchis------------	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-------	8	---	---	---	---	---	---	---	---	---	---	---
76:												
Harslow------------	7e	---	---	---	---	---	---	---	---	---	---	---
Klistan------------	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-------	8	---	---	---	---	---	---	---	---	---	---	---
77:												
Hazelair-----------	3e	3e	---	---	---	---	5.00	6.50	600.00	---	40.00	---
78:												
Hazelair-----------	4e	---	---	---	---	---	4.50	---	550.00	---	35.00	---
79:												
Hazelair-----------	4e	---	---	---	---	---	3.00	---	400.00	---	25.00	---
80:												
Hazelair-----------	4e	---	---	---	---	---	---	---	---	---	---	---
81:												
Helmick------------	3e	2e	---	---	---	---	4.00	6.00	500.00	---	35.00	---
82:												
Helvetia-----------	2e	2e	---	9.00	---	---	11.00	15.50	1,350.00	---	90.00	---
83:												
Hemcross-----------	6e	---	---	---	---	---	---	---	---	---	---	---
Klistan------------	6e	---	---	---	---	---	---	---	---	---	---	---
84:												
Hemcross-----------	6e	---	---	---	---	---	---	---	---	---	---	---
Klistan------------	6e	---	---	---	---	---	---	---	---	---	---	---
85:												
Holcomb------------	3w	3w	---	7.00	---	---	7.50	12.00	950.00	---	65.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
86:												
Honeygrove----------	6e	---	---	---	---	---	8.00	---	---	---	---	---
Peavine, sedimentary bedrock-----------	6e	---	---	---	---	---	---	---	---	---	---	---
87:												
Honeygrove----------	6e	---	---	---	---	---	8.00	---	---	---	---	---
Peavine, sedimentary bedrock-----------	6e	---	---	---	---	---	---	---	---	---	---	---
88:												
Honeygrove, basalt bedrock-----------	6e	---	---	---	---	---	8.00	---	---	---	---	---
Peavine, basalt bedrock-----------	6e	---	---	---	---	---	---	---	---	---	---	---
89:												
Honeygrove, basalt bedrock-----------	6e	---	---	---	---	---	8.00	---	---	---	---	---
Peavine, basalt bedrock-----------	6e	---	---	---	---	---	---	---	---	---	---	---
90:												
Honeygrove, basalt bedrock-----------	6e	---	---	---	---	---	---	---	---	---	---	---
Shivigny-----------	6e	---	---	---	---	---	---	---	---	---	---	---
91:												
Jory, basalt bedrock-----------	2e	2e	---	8.00	---	---	9.00	13.50	1,150.00	---	75.00	---
92:												
Jory, basalt bedrock-----------	3e	---	---	---	---	---	9.00	---	1,100.00	---	75.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
93:												
Jory, basalt bedrock-----------	4e	---	---	---	---	---	8.00	---	1,000.00	---	65.00	---
94:												
Jory, sedimentary bedrock-----------	2e	2e	---	8.00	---	---	9.00	13.50	1,150.00	---	75.00	---
95:												
Jory, sedimentary bedrock-----------	3e	---	---	---	---	---	9.00	---	1,100.00	---	75.00	---
96:												
Jory, sedimentary bedrock-----------	4e	---	---	---	---	---	8.00	---	1,000.00	---	65.00	---
97:												
Jory, sedimentary bedrock-----------	2e	---	---	---	---	---	9.00	---	---	---	---	---
Dupee--------------	3e	---	---	---	---	---	9.00	---	---	---	---	---
98:												
Jory, basalt bedrock-----------	4e	---	---	---	---	---	---	---	---	---	---	---
Gelderman----------	4e	---	---	---	---	---	---	---	---	---	---	---
99:												
Jory, basalt bedrock-----------	3e	---	---	---	---	---	9.00	---	---	---	---	---
Nekia--------------	3e	---	---	---	---	---	7.00	---	---	---	---	---
100:												
Jory, basalt bedrock-----------	4e	---	---	---	---	---	8.00	---	---	---	---	---
Nekia--------------	4e	---	---	---	---	---	6.00	---	---	---	---	---
101:												
Kirkendall---------	2w	2w	---	---	---	---	14.00	18.00	---	---	---	---
Nekoma-------------	3w	3w	---	---	---	---	8.00	14.00	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
101:												
Quosatana----------	3w	3w	---	---	---	---	8.00	14.00	---	---	---	---
102:												
Klistan------------	6e	---	---	---	---	---	---	---	---	---	---	---
Harslow------------	6e	---	---	---	---	---	---	---	---	---	---	---
103:												
Klistan------------	6e	---	---	---	---	---	---	---	---	---	---	---
Harslow------------	6e	---	---	---	---	---	---	---	---	---	---	---
Hemcross-----------	6e	---	---	---	---	---	---	---	---	---	---	---
104:												
Laderly------------	6e	---	---	---	---	---	---	---	---	---	---	---
Murtip-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Giveout------------	6e	---	---	---	---	---	---	---	---	---	---	---
105:												
Linslaw------------	2w	2w	---	7.50	---	---	8.50	13.00	1,050.00	---	70.00	---
106:												
Linslaw------------	3e	3e	---	7.00	---	---	8.00	12.50	1,000.00	---	65.00	---
107:												
Lurnick------------	7e	---	---	---	---	---	---	---	---	---	---	---
Luckiamute---------	7s	---	---	---	---	---	---	---	---	---	---	---
108:												
Lurnick------------	6e	---	---	---	---	---	---	---	---	---	---	---
Luckiamute---------	6s	---	---	---	---	---	---	---	---	---	---	---
Maryspeak----------	6e	---	---	---	---	---	---	---	---	---	---	---
109:												
MacDunn------------	7s	---	---	---	---	---	---	---	---	---	---	---
Price--------------	7e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
109: Ritner	7s	---	---	---	---	---	---	---	---	---	---	---
110: Malabon	1	1	---	9.50	---	85.00	11.50	16.00	1,450.00	---	95.00	---
111: Malabon, rarely flooded	2w	2w	---	9.50	---	85.00	11.50	16.00	1,450.00	---	95.00	---
112: Maryspeak	6e	---	---	---	---	---	---	---	---	---	---	---
113: McAlpin	2e	2e	---	8.00	---	45.00	10.00	14.00	1,250.00	---	85.00	---
114: McAlpin	2e	2e	---	8.00	---	40.00	10.00	13.50	1,250.00	---	85.00	---
115: McAlpin, high precipitation	2e	2e	---	---	---	---	8.50	12.50	900.00	---	95.00	---
116: McAlpin, high precipitation	2e	2e	---	---	---	---	8.50	12.00	900.00	---	95.00	---
117: McAlpin, rarely flooded	2w	2w	---	8.00	---	45.00	10.00	14.00	1,250.00	---	85.00	---
118: McBee	2w	2w	---	9.00	---	80.00	19.50	15.00	1,350.00	---	90.00	---
119: McBee, nonflooded	2w	2w	---	9.00	---	80.00	11.00	15.50	1,400.00	---	90.00	---
120: Meda	3e	3e	---	---	---	---	8.00	15.00	---	---	---	---
Treharne	2c	2c	---	---	---	---	8.00	16.00	---	---	---	---
Wasson	3w	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
121:												
Mulkey-------------	6e	---	---	---	---	---	---	---	---	---	---	---
122:												
Mulkey-------------	6e	---	---	---	---	---	---	---	---	---	---	---
123:												
Murtip-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Giveout------------	6e	---	---	---	---	---	---	---	---	---	---	---
Laderly------------	6e	---	---	---	---	---	---	---	---	---	---	---
124:												
Nekoma-------------	3w	3w	---	---	---	---	8.00	14.00	---	---	---	---
Fluvaquents--------	7w	---	---	---	---	---	---	---	---	---	---	---
125:												
Newberg------------	2w	2w	---	9.50	---	85.00	10.00	16.50	---	2,000.00	80.00	---
126:												
Newberg, high precipitation-----	2w	2w	---	---	---	---	8.50	15.00	---	---	55.00	---
127:												
Newberg------------	2w	2w	---	9.50	---	85.00	10.00	16.50	---	2,000.00	80.00	---
128:												
Oldblue------------	6e	---	---	---	---	---	---	---	---	---	---	---
Burntwoods---------	6e	---	---	---	---	---	---	---	---	---	---	---
129:												
Panther------------	6w	4w	---	---	---	---	2.50	4.50	---	---	---	---
130:												
Pengra-------------	3w	3w	---	---	---	---	7.50	10.00	950.00	---	65.00	---
131:												
Philomath----------	6e	6e	---	---	---	---	2.50	5.00	---	---	---	---
132:												
Pilchuck-----------	4w	4w	---	7.00	---	60.00	---	12.00	---	1,450.00	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
133:												
Pits	8	---	---	---	---	---	---	---	---	---	---	---
134:												
Preacher	6e	---	---	---	---	---	---	---	---	---	---	---
Blachly	6e	---	---	---	---	---	---	---	---	---	---	---
Bohannon	6e	---	---	---	---	---	---	---	---	---	---	---
135:												
Preacher	6e	---	---	---	---	---	9.00	---	---	---	---	---
Bohannon	6e	---	---	---	---	---	---	---	---	---	---	---
136:												
Preacher	6e	---	---	---	---	---	---	---	---	---	---	---
Bohannon	6e	---	---	---	---	---	---	---	---	---	---	---
Slickrock	6e	---	---	---	---	---	---	---	---	---	---	---
137:												
Price	6e	---	---	---	---	---	---	---	---	---	---	---
MacDunn	6s	---	---	---	---	---	---	---	---	---	---	---
Ritner	7s	---	---	---	---	---	---	---	---	---	---	---
138:												
Riverwash	8	---	---	---	---	---	---	---	---	---	---	---
139:												
Salem	2s	2s	---	9.50	---	80.00	10.50	16.00	1,300.00	---	85.00	---
140:												
Santiam	2e	2e	---	8.50	---	---	10.50	15.00	1,350.00	---	90.00	---
141:												
Santiam	3e	3e	---	8.00	---	---	9.50	14.00	1,200.00	---	80.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
142:												
Sevencedars	7e	---	---	---	---	---	---	---	---	---	---	---
Newanna	7e	---	---	---	---	---	---	---	---	---	---	---
143:												
Sevencedars	6e	---	---	---	---	---	---	---	---	---	---	---
Newanna	6e	---	---	---	---	---	---	---	---	---	---	---
Woodspoint	6e	---	---	---	---	---	---	---	---	---	---	---
144:												
Sevencedars	6e	---	---	---	---	---	---	---	---	---	---	---
Newanna	6e	---	---	---	---	---	---	---	---	---	---	---
Woodspoint	6e	---	---	---	---	---	---	---	---	---	---	---
145:												
Shivigny	6e	---	---	---	---	---	---	---	---	---	---	---
Honeygrove, basalt bedrock	6e	---	---	---	---	---	---	---	---	---	---	---
146:												
Slickrock	6e	---	---	---	---	---	---	---	---	---	---	---
147:												
Steiwer	3e	3e	---	---	---	---	9.50	14.50	1,200.00	---	80.00	---
Chehulpum	6e	6e	---	---	---	---	9.00	11.00	1,100.00	---	75.00	---
148:												
Steiwer	6e	---	---	---	---	---	8.50	---	1,050.00	---	70.00	---
Chehulpum	6e	---	---	---	---	---	7.50	---	900.00	---	60.00	---
149:												
Steiwer	6e	---	---	---	---	---	7.00	---	---	---	---	---
Chehulpum	7e	---	---	---	---	---	6.00	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
150:												
Treharne-----------	2c	2c	---	---	---	---	8.00	16.00	---	---	---	---
Eilertsen----------	2c	2c	---	---	---	---	14.00	16.00	---	---	---	---
Zyzzug-------------	3w	3w	---	---	---	---	8.00	14.00	---	---	---	---
151:												
Valsetz------------	6s	---	---	---	---	---	---	---	---	---	---	---
Yellowstone--------	6s	---	---	---	---	---	---	---	---	---	---	---
152:												
Valsetz------------	6s	---	---	---	---	---	---	---	---	---	---	---
Yellowstone--------	7s	---	---	---	---	---	---	---	---	---	---	---
153:												
Valsetz------------	7s	---	---	---	---	---	---	---	---	---	---	---
Yellowstone--------	7s	---	---	---	---	---	---	---	---	---	---	---
154:												
Verboort-----------	3w	3w	---	---	---	---	4.00	9.00	500.00	---	---	---
155:												
Waldo--------------	3w	3w	---	---	---	---	6.00	11.50	750.00	---	---	---
156:												
Waldo, high precipitation-----	3w	3w	---	---	---	---	4.50	10.00	---	---	---	---
157:												
Wapato-------------	3w	3w	---	---	---	---	7.00	12.50	850.00	---	---	---
158:												
Wapato, high precipitation-----	3w	3w	---	---	---	---	5.00	10.50	---	---	---	---
159:												
Water--------------	---	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability N	Land capability I	Sweet corn N	Sweet corn I	Distillate mint N	Distillate mint I	Pasture N	Pasture I	Perennial ryegrass seed N	Perennial ryegrass seed I	Winter wheat N	Winter wheat I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
160:												
Wellsdale----------	4e	---	---	---	---	---	10.50	---	1,300.00	---	85.00	---
Willakenzie--------	4e	---	---	---	---	---	8.00	---	1,000.00	---	70.00	---
161:												
Wellsdale----------	2e	2e	---	9.50	---	---	11.50	16.50	1,450.00	---	95.00	---
Willakenzie--------	3e	3e	---	8.50	---	---	9.50	14.50	1,200.00	---	80.00	---
Dupee--------------	3e	2e	---	7.50	---	---	9.00	13.00	1,050.00	---	75.00	---
162:												
Wellsdale, north slopes------------	3e	---	---	---	---	---	11.00	---	1,400.00	---	95.00	---
Willakenzie, north slopes------------	3e	---	---	---	---	---	9.00	---	1,150.00	---	75.00	---
Dupee, north slopes	4e	---	---	---	---	---	8.50	---	1,050.00	---	70.00	---
163:												
Willakenzie--------	3e	3e	---	8.50	---	---	9.50	14.50	1,200.00	---	80.00	---
164:												
Willakenzie--------	3e	---	---	---	---	---	9.00	---	1,150.00	---	75.00	---
165:												
Willakenzie--------	4e	---	---	---	---	---	8.00	---	1,000.00	---	70.00	---
166:												
Willakenzie--------	6e	---	---	---	---	---	7.00	---	---	---	---	---
167:												
Willakenzie, south slopes------------	3e	---	---	---	---	---	9.00	---	1,150.00	---	75.00	---
Wellsdale, south slopes------------	3e	---	---	---	---	---	11.00	---	1,400.00	---	95.00	---
168:												
Willakenzie--------	4e	---	---	---	---	---	7.00	---	1,000.00	---	75.00	---
Wellsdale----------	4e	---	---	---	---	---	11.00	---	1,400.00	---	95.00	---

Table 5.--Land Capability Classification and Yields per Acre--Continued

Map symbol and soil name	Land capability		Sweet corn		Distillate mint		Pasture		Perennial ryegrass seed		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	*Tons*	*Lbs*	*Lbs*	*AUM*	*AUM*	*Lbs*	*Lbs*	*Bu*	*Bu*
169:												
Willamette---------	1	1	---	10.00	---	90.00	12.50	17.00	1,550.00	---	105.00	---
170:												
Willamette---------	2e	2e	---	9.50	---	85.00	12.00	16.50	1,500.00	---	100.00	---
171:												
Willamette---------	3e	3e	---	9.50	---	---	11.50	16.00	1,400.00	---	95.00	---
172:												
Witham-------------	3e	4e	---	---	---	---	3.50	5.00	---	---	30.00	---
173:												
Witham-------------	4e	---	---	---	---	---	---	---	---	---	---	---
174:												
Witzel-------------	6s	---	---	---	---	---	3.00	---	---	---	---	---
Ritner-------------	4s	---	---	---	---	---	4.00	---	---	---	---	---
175:												
Witzel-------------	6s	---	---	---	---	---	3.00	---	---	---	---	---
Ritner-------------	6s	---	---	---	---	---	4.00	---	---	---	---	---
176:												
Witzel-------------	7s	---	---	---	---	---	2.00	---	---	---	---	---
Ritner-------------	7s	---	---	---	---	---	3.00	---	---	---	---	---
177:												
Woodburn-----------	2w	2w	---	10.00	---	85.00	12.00	16.00	1,500.00	---	100.00	---
178:												
Woodburn-----------	2e	2e	---	9.50	---	85.00	11.50	16.00	1,450.00	---	95.00	---
179:												
Woodburn-----------	3e	3e	---	9.00	---	---	11.00	15.50	1,400.00	---	90.00	---
180:												
Woodburn-----------	6e	---	---	---	---	---	---	---	---	---	---	---

Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland.)

Map symbol	Soil name	Farmland classification
1	Abiqua silty clay loam, 0 to 3 percent slopes	Prime farmland
2	Abiqua silty clay loam, 3 to 5 percent slopes	Prime farmland
3	Abiqua silty clay loam, high precipitation, 0 to 3 percent slopes	Prime farmland
4	Abiqua silty clay loam, high precipitation, 3 to 5 percent slopes	Prime farmland
5	Abiqua silty clay loam, rarely flooded, 0 to 3 percent slopes	Prime farmland
6	Alsea loam, 0 to 5 percent slopes	Prime farmland
7	Alsea loam, rarely flooded, 0 to 3 percent slopes	Prime farmland
8	Amity silt loam, 0 to 3 percent slopes	Prime farmland if drained
17	Bellpine-Jory complex, 2 to 12 percent slopes	Prime farmland
25	Briedwell gravelly loam, 0 to 7 percent slopes	Prime farmland
34	Chapman loam, 0 to 3 percent slopes	Prime farmland
35	Chapman loam, high precipitation, 0 to 3 percent slopes	Prime farmland
36	Chehalem silty clay loam, 0 to 3 percent slopes	Prime farmland if drained
38	Chehalis silt loam, 0 to 3 percent slopes	Prime farmland
39	Chehalis silt loam, high precipitation, 0 to 3 percent slopes	Prime farmland
40	Chehalis silty clay loam, 0 to 3 percent slopes	Prime farmland
46	Cloquato silt loam, 0 to 3 percent slopes	Prime farmland
47	Cloquato silt loam, high precipitation, 0 to 3 percent slopes	Prime farmland
48	Coburg complex, rarely and occasionally flooded, 0 to 3 percent slopes	Prime farmland
49	Coburg silty clay loam, 0 to 3 percent slopes	Prime farmland
50	Coburg silty clay loam, rarely flooded, 0 to 3 percent slopes	Prime farmland
71	Gelderman-Jory complex, 2 to 12 percent slopes	Prime farmland
82	Helvetia silt loam, 2 to 7 percent slopes	Prime farmland
85	Holcomb silt loam, 0 to 3 percent slopes	Prime farmland if drained
91	Jory silty clay loam, basalt bedrock, 2 to 12 percent slopes	Prime farmland
94	Jory silty clay loam, sedimentary bedrock, 2 to 12 percent slopes	Prime farmland
105	Linslaw loam, 0 to 3 percent slopes	Prime farmland if drained
106	Linslaw loam, 3 to 8 percent slopes	Prime farmland if drained
110	Malabon silty clay loam, 0 to 3 percent slopes	Prime farmland
111	Malabon silty clay loam, rarely flooded, 0 to 3 percent slopes	Prime farmland
113	McAlpin silty clay loam, 0 to 3 percent slopes	Prime farmland
114	McAlpin silty clay loam, 3 to 6 percent slopes	Prime farmland
115	McAlpin silty clay loam, high precipitation, 0 to 3 percent slopes	Prime farmland
116	McAlpin silty clay loam, high precipitation, 3 to 6 percent slopes	Prime farmland
117	McAlpin silty clay loam, rarely flooded, 0 to 3 percent slopes	Prime farmland
118	McBee silty clay loam, 0 to 3 percent slopes	Prime farmland
119	McBee silty clay loam, nonflooded, 0 to 3 percent slopes	Prime farmland
125	Newberg fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
126	Newberg fine sandy loam, high precipitation, 0 to 3 percent slopes	Prime farmland if irrigated
127	Newberg loam, 0 to 3 percent slopes	Prime farmland if irrigated
130	Pengra silt loam, 2 to 12 percent slopes	Prime farmland if drained

Table 6.--Prime Farmland--Continued

Map symbol	Soil name	Farmland classification
139	Salem gravelly silt loam, 0 to 3 percent slopes	Prime farmland
140	Santiam silt loam, 2 to 8 percent slopes	Prime farmland
157	Wapato silty clay loam, 0 to 3 percent slopes	Prime farmland if drained and protected from flooding or not frequently flooded during the growing season
158	Wapato silty clay loam, high precipitation, 0 to 3 percent slopes	Prime farmland if drained and protected from flooding or not frequently flooded during the growing season
163	Willakenzie loam, 2 to 12 percent slopes	Prime farmland
169	Willamette silt loam, 0 to 3 percent slopes	Prime farmland
177	Woodburn silt loam, 0 to 3 percent slopes	Prime farmland

Table 7.--Forestland Productivity

(Absence of an entry indicates that either the soil typically does not support trees or that the soil may support trees but a sufficient number of trees for site index data collection were not available.)

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
1:				
Abiqua	Douglas fir	135	200	Douglas fir
	Grand fir	---	---	
2:				
Abiqua	Douglas fir	135	200	Douglas fir
	Grand fir	---	---	
3:				
Abiqua, high precipitation	Douglas fir	135	200	Douglas fir
	Grand fir	---	---	
4:				
Abiqua, high precipitation	Douglas fir	135	200	Douglas fir
	Grand fir	---	---	
5:				
Abiqua, rarely flooded	Douglas fir	135	200	Douglas fir
	Grand fir	---	---	
6:				
Alsea	Douglas fir	---	---	Douglas fir
	Grand fir	---	---	
	Oregon white oak	---	---	
7:				
Alsea, rarely flooded	Douglas fir	---	---	Douglas fir
	Grand fir	---	---	
	Oregon white oak	---	---	
8:				
Amity	---	---	---	---
9:				
Apt	Bigleaf maple	---	---	Douglas fir, red alder
	Douglas fir	138	210	
	Red alder	---	---	
	Western hemlock	---	---	
McDuff	Bigleaf maple	---	---	Douglas fir, red alder
	Douglas fir	110	154	
	Red alder	---	---	
	Western hemlock	---	---	
10:				
Apt	Bigleaf maple	---	---	Douglas fir, red alder
	Douglas fir	138	210	
	Red alder	---	---	
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
10:				
McDuff	Bigleaf maple	---	---	Douglas fir, western hemlock,
	Douglas fir	110	154	
	Red alder	---	---	
	Western hemlock	---	---	
11:				
Aquents	---	---	---	---
12:				
Awbrig	---	---	---	---
13:				
Bashaw, nonflooded	---	---	---	---
14:				
Bashaw, flooded	---	---	---	---
15:				
Bashaw, nonflooded	---	---	---	---
16:				
Bashaw, nonflooded	---	---	---	---
17:				
Bellpine	Bigleaf maple	---	---	Douglas fir
	Douglas fir	115	172	
	Grand fir	---	---	
	Oregon white oak	---	---	
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
18:				
Bellpine	Bigleaf maple	---	---	Douglas fir
	Douglas fir	115	172	
	Grand fir	---	---	
	Oregon white oak	---	---	
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
19:				
Bellpine	Bigleaf maple	---	---	Douglas fir
	Douglas fir	115	172	
	Grand fir	---	---	
	Oregon white oak	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
19:				
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
20:				
Bellpine	Bigleaf maple	---	---	Douglas fir
	Douglas fir	115	172	
	Grand fir	---	---	
	Oregon white oak	---	---	
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
21:				
Blachly	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	127	188	
	Western hemlock	---	---	
	Western redcedar	---	---	
Kilowan	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	---	---	
	Red alder	---	---	
	Western hemlock	---	---	
22:				
Blachly	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	127	188	
	Western hemlock	---	---	
	Western redcedar	---	---	
Kilowan	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	---	---	
	Red alder	---	---	
	Western hemlock	---	---	
23:				
Bohannon	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	
Preacher	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	128	190	
	Red alder	---	---	
	Western hemlock	---	---	
24:				
Bohannon	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
24:				
Preacher	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	128	190	
	Red alder	---	---	
	Western hemlock	---	---	
25:				
Briedwell	---	---	---	---
26:				
Briedwell	---	---	---	---
27:				
Burntwoods	Douglas fir	125	184	Douglas fir, western hemlock
	Western hemlock	---	---	
Oldblue	Douglas fir	124	182	Douglas fir, western hemlock
	Western hemlock	---	---	
28:				
Camas	---	---	---	---
29:				
Camas, rarely flooded	---	---	---	---
30:				
Caterl	Douglas fir	116	167	Douglas fir, western hemlock
	Western hemlock	107	---	
Laderly	Douglas fir	114	162	Douglas fir, western hemlock
	Western hemlock	---	---	
Romanose	Douglas fir	96	128	Douglas fir, western hemlock
	Western hemlock	---	---	
31:				
Caterl	Douglas fir	116	167	Douglas fir, western hemlock
	Western hemlock	107	---	
Laderly	Douglas fir	114	162	Douglas fir, western hemlock
	Western hemlock	---	---	
Romanose	Douglas fir	96	128	Douglas fir, western hemlock
	Western hemlock	---	---	
32:				
Caterl	Douglas fir	116	167	Douglas fir, western hemlock
	Western hemlock	107	---	
Murtip	Douglas fir	118	171	Douglas fir, western hemlock
	Western hemlock	112	---	
Giveout	Douglas fir	115	163	Douglas fir, western hemlock
	Western hemlock	109	---	
33:				
Caterl	Douglas fir	116	167	Douglas fir, western hemlock
	Western hemlock	107	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
33:				
Murtip	Douglas fir	118	171	Douglas fir, western hemlock
	Western hemlock	112	---	
Laderly	Douglas fir	114	162	Douglas fir, western hemlock
	Western hemlock	---	---	
34:				
Chapman	---	---	---	---
35:				
Chapman, high precipitation	Bigleaf maple	---	---	Black cottonwood, Douglas fir, grand fir
	Black cottonwood	---	---	
	Douglas fir	---	---	
	Grand fir	---	---	
	Oregon white oak	---	---	
36:				
Chehalem	---	---	---	---
37:				
Chehalem	---	---	---	---
38:				
Chehalis	---	---	---	---
39:				
Chehalis, high precipitation	Bigleaf maple	---	---	Douglas fir, red alder
	Douglas fir	---	---	
	Grand fir	---	---	
	Ponderosa pine	---	---	
	Red alder	---	---	
	Western redcedar	---	---	
40:				
Chehalis	---	---	---	---
41:				
Chintimini	Douglas fir	105	145	Douglas fir, western hemlock
	Western hemlock	---	---	
Blodgett	Douglas fir	103	141	Douglas fir, western hemlock
	Western hemlock	---	---	
42:				
Chintimini	Douglas fir	105	145	Douglas fir, western hemlock
	Western hemlock	---	---	
Blodgett	Douglas fir	103	141	Douglas fir, western hemlock
	Western hemlock	---	---	
Fiverivers	Douglas fir	115	163	Douglas fir, western hemlock
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
43:				
Chintimini	Douglas fir	105	145	Douglas fir, western hemlock
	Western hemlock	---	---	
Grassmountain	Douglas fir	118	171	Douglas fir, western hemlock
	Western hemlock	---	---	
44:				
Chismore	Douglas fir	---	---	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Pyburn	---	---	---	---
45:				
Chismore	Douglas fir	---	---	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Pyburn	---	---	---	---
46:				
Cloquato	---	---	---	---
47:				
Cloquato, high precipitation	Bigleaf maple	---	---	Douglas fir, red alder
	Douglas fir	---	---	
	Red alder	---	---	
	Western redcedar	---	---	
48:				
Coburg, occasionally flooded	Black cottonwood	---	---	Douglas fir
	Douglas fir	---	---	
	Oregon white oak	---	---	
Coburg, rarely flooded	Black cottonwood	---	---	Douglas fir
	Douglas fir	---	---	
	Oregon white oak	---	---	
49:				
Coburg	---	---	---	---
50:				
Coburg, rarely flooded	---	---	---	---
51:				
Concord	---	---	---	---
52:				
Conser	---	---	---	---
53:				
Dayton	---	---	---	---

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
54:				
Dayton, clay substratum	---	---	---	---
55:				
Digger	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	110	154	
	Western hemlock	---	---	
Bohannon	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	
56:				
Digger	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	110	154	
	Western hemlock	---	---	
Remote	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	102	140	
	Western hemlock	---	---	
Umpcoos	Douglas fir	---	---	Douglas fir, western hemlock
	Pacific madrone	---	---	
	Western hemlock	---	---	
57:				
Digger	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	110	154	
	Western hemlock	---	---	
Umpcoos	Douglas fir	---	---	Douglas fir, western hemlock
	Pacific madrone	---	---	
	Western hemlock	---	---	
Remote	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	102	140	
	Western hemlock	---	---	
58:				
Dixonville	Douglas fir	99	134	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
Gellatly	Douglas fir	113	157	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
59:				
Dixonville	Douglas fir	99	134	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
Gellatly	Douglas fir	113	157	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
60:				
Dixonville	---	---	---	---
Gellatly	---	---	---	---
Witham	---	---	---	---

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
61:				
Dupee	---	---	---	---
62:				
Dupee	---	---	---	---
63:				
Elsie	Bigleaf maple	---	---	Douglas fir,
	Douglas fir	144	222	western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
64:				
Elsie	Bigleaf maple	---	---	Douglas fir,
	Douglas fir	144	222	western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
65:				
Fiverivers	Douglas fir	115	163	Douglas fir,
	Western hemlock	---	---	western hemlock
Grassmountain	Douglas fir	118	171	Douglas fir,
	Western hemlock	---	---	western hemlock
Chintimini	Douglas fir	105	145	Douglas fir,
	Western hemlock	---	---	western hemlock
66:				
Fluvents	Bigleaf maple	---	---	---
	Black cottonwood	---	---	
Fluvaquents	Black cottonwood	---	---	---
	Oregon ash	---	---	
67:				
Fluvents, high precipitation	Bigleaf maple	---	---	---
	Black cottonwood	---	---	
Fluvaquents, high precipitation	Bigleaf maple	---	---	---
	Black cottonwood	---	---	
68:				
Formader	Bigleaf maple	---	---	Douglas fir,
	Douglas fir	119	173	western hemlock
	Western hemlock	---	---	
Hemcross	Douglas fir	126	186	Douglas fir,
	Red alder	---	---	western hemlock
	Western hemlock	---	---	
	Western redcedar	---	---	
69:				
Formader	Bigleaf maple	---	---	Douglas fir,
	Douglas fir	119	173	western hemlock
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
69:				
Hemcross	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
70:				
Formader	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	
Klistan	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Hemcross	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
71:				
Gelderman	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	113	157	
	Grand fir	---	---	
	Oregon white oak	---	---	
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
72:				
Goodin	---	---	---	---
Dupee	---	---	---	---
Chehulpum	---	---	---	---
73:				
Goodin	---	---	---	---
Chehulpum	---	---	---	---
Dupee	---	---	---	---
74:				
Grassmountain	Douglas fir	118	171	Douglas fir, western hemlock
	Western hemlock	---	---	
Fiverivers	Douglas fir	115	163	Douglas fir, western hemlock
	Western hemlock	---	---	
Chintimini	Douglas fir	105	145	Douglas fir, western hemlock
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
75:				
Harslow	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	115	163	
	Red alder	---	---	
	Western hemlock	---	---	
Kilchis	Douglas fir	---	---	Douglas fir, western hemlock
	Pacific madrone	---	---	
	Western hemlock	---	---	
Rock outcrop	---	---	---	---
76:				
Harslow	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	115	163	
	Red alder	---	---	
	Western hemlock	---	---	
Klistan	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Rock outcrop	---	---	---	---
77:				
Hazelair	---	---	---	---
78:				
Hazelair	---	---	---	---
79:				
Hazelair	Douglas fir	---	---	Douglas fir
	Oregon white oak	---	---	
80:				
Hazelair	Douglas fir	---	---	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
81:				
Helmick	---	---	---	---
82:				
Helvetia	---	---	---	---
83:				
Hemcross	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Klistan	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
84:				
Hemcross	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Klistan	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
85:				
Holcomb	---	---	---	---
86:				
Honeygrove	Bigleaf maple	---	---	Douglas fir
	Douglas fir	124	182	
	Red alder	---	---	
Peavine, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	128	190	
	Red alder	---	---	
87:				
Honeygrove	Bigleaf maple	---	---	Douglas fir
	Douglas fir	124	182	
	Red alder	---	---	
Peavine, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	128	190	
	Red alder	---	---	
88:				
Honeygrove, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	124	182	
	Red alder	---	---	
Peavine, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	128	190	
	Red alder	---	---	
89:				
Honeygrove, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	124	182	
	Red alder	---	---	
Peavine, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	128	190	
	Red alder	---	---	
90:				
Honeygrove, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	124	182	
	Red alder	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
90:				
Shivigny	Bigleaf maple	---	---	Douglas fir
	Douglas fir	127	188	
	Red alder	---	---	
91:				
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
92:				
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
93:				
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
94:				
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
95:				
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
96:				
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
97:				
Jory, sedimentary bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
Dupee	Douglas fir	---	---	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
98:				
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
98:				
Gelderman	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	113	157	
	Grand fir	---	---	
	Oregon white oak	---	---	
99:				
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
Nekia	Bigleaf maple	---	---	Douglas fir
	Douglas fir	113	157	
	Grand fir	---	---	
	Oregon white oak	---	---	
100:				
Jory, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
Nekia	Bigleaf maple	---	---	Douglas fir
	Douglas fir	113	157	
	Grand fir	---	---	
	Oregon white oak	---	---	
101:				
Kirkendall	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	---	---	
	Red alder	---	---	
	Western hemlock	---	---	
Nekoma	---	---	---	---
Quosatana	---	---	---	---
102:				
Klistan	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Harslow	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	115	163	
	Red alder	---	---	
	Western hemlock	---	---	
103:				
Klistan	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Harslow	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	115	163	
	Red alder	---	---	
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
103:				
Hemcross	Douglas fir	126	186	Douglas fir, western hemlock
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
104:				
Laderly	Douglas fir	114	162	Douglas fir, western hemlock
	Western hemlock	---	---	
Murtip	Douglas fir	118	171	Douglas fir, western hemlock
	Western hemlock	112	---	
Giveout	Douglas fir	115	163	Douglas fir, western hemlock
	Western hemlock	109	---	
105:				
Linslaw	---	---	---	---
106:				
Linslaw	---	---	---	---
107:				
Lurnick	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Western hemlock	---	---	
Luckiamute	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Western hemlock	---	---	
108:				
Lurnick	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Western hemlock	---	---	
Luckiamute	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Western hemlock	---	---	
Maryspeak	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Western hemlock	---	---	
109:				
MacDunn	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	105	145	
	Grand fir	---	---	
	Oregon white oak	---	---	
Price	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
	Pacific yew	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
109:				
Ritner	Bigleaf maple	---	---	Douglas fir, grand fir, ponderosa pine
	Douglas fir	99	134	
	Grand fir	---	---	
	Oregon white oak	---	---	
	Ponderosa pine	---	---	
110:				
Malabon	---	---	---	---
111:				
Malabon, rarely flooded	---	---	---	---
112:				
Maryspeak	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Western hemlock	---	---	
113:				
McAlpin	Douglas fir	144	222	Douglas fir, ponderosa pine
	Grand fir	---	---	
	Oregon ash	---	---	
114:				
McAlpin	Douglas fir	144	222	Douglas fir, ponderosa pine
	Grand fir	---	---	
	Oregon ash	---	---	
115:				
McAlpin, high precipitation	Douglas fir	---	---	Douglas fir, grand fir, ponderosa pine
	Grand fir	---	---	
	Oregon ash	---	---	
	Ponderosa pine	---	---	
	Red alder	---	---	
116:				
McAlpin, high precipitation	Douglas fir	---	---	Douglas fir, grand fir, ponderosa pine
	Grand fir	---	---	
	Oregon ash	---	---	
	Ponderosa pine	---	---	
	Red alder	---	---	
117:				
McAlpin, rarely flooded	Douglas fir	144	222	Douglas fir, ponderosa pine
	Grand fir	---	---	
	Oregon ash	---	---	
118:				
McBee	---	---	---	---
119:				
McBee, nonflooded	---	---	---	---

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
120:				
Meda	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Treharne	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	---	---	
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Wasson	---	---	---	---
121:				
Mulkey	---	---	---	---
122:				
Mulkey	---	---	---	---
123:				
Murtip	Douglas fir	118	171	Douglas fir, western hemlock
	Western hemlock	112	---	
Giveout	Douglas fir	115	163	Douglas fir, western hemlock
	Western hemlock	109	---	
Laderly	Douglas fir	114	162	Douglas fir, western hemlock
	Western hemlock	---	---	
124:				
Nekoma	---	---	---	---
Fluvaquents	---	---	---	---
125:				
Newberg	---	---	---	---
126:				
Newberg, high precipitation	Bigleaf maple	---	---	Douglas fir
	Black cottonwood	---	---	
	Douglas fir	---	---	
	Oregon ash	---	---	
	Red alder	---	---	
127:				
Newberg	---	---	---	---
128:				
Oldblue	Douglas fir	124	182	Douglas fir, western hemlock
	Western hemlock	---	---	
Burntwoods	Douglas fir	125	184	Douglas fir, western hemlock
	Western hemlock	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
129:				
Panther	Oregon ash	---	---	---
	Pacific willow	---	---	
130:				
Pengra	Douglas fir	---	---	Ponderosa pine
	Oregon ash	---	---	
	Oregon white oak	---	---	
131:				
Philomath	---	---	---	---
132:				
Pilchuck	---	---	---	---
133:				
Pits	---	---	---	---
134:				
Preacher	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	128	190	
	Red alder	---	---	
	Western hemlock	---	---	
Blachly	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	127	188	
	Western hemlock	---	---	
	Western redcedar	---	---	
Bohannon	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	
135:				
Preacher	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	128	190	
	Red alder	---	---	
	Western hemlock	---	---	
Bohannon	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	
136:				
Preacher	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	128	190	
	Red alder	---	---	
	Western hemlock	---	---	
Bohannon	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	119	173	
	Western hemlock	---	---	
Slickrock	Douglas fir	138	210	Douglas fir, western hemlock
	Western hemlock	---	---	
	Western redcedar	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
137:				
Price	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	122	178	
	Grand fir	---	---	
	Oregon white oak	---	---	
	Pacific yew	---	---	
MacDunn	Bigleaf maple	---	---	Douglas fir, grand fir
	Douglas fir	105	145	
	Grand fir	---	---	
	Oregon white oak	---	---	
Ritner	Bigleaf maple	---	---	Douglas fir, grand fir, ponderosa pine
	Douglas fir	99	134	
	Grand fir	---	---	
	Oregon white oak	---	---	
	Ponderosa pine	---	---	
138:				
Riverwash	---	---	---	---
139:				
Salem	---	---	---	---
140:				
Santiam	---	---	---	---
141:				
Santiam	---	---	---	---
142:				
Sevencedars	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
Newanna	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
143:				
Sevencedars	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
Newanna	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
Woodspoint	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
144:				
Sevencedars	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
144:				
Newanna	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
Woodspoint	Noble fir	---	---	Noble fir, western hemlock, Douglas fir
	Western hemlock	---	---	
	Douglas fir	---	---	
145:				
Shivigny	Bigleaf maple	---	---	Douglas fir
	Douglas fir	127	188	
	Red alder	---	---	
Honeygrove, basalt bedrock	Bigleaf maple	---	---	Douglas fir
	Douglas fir	124	182	
	Red alder	---	---	
146:				
Slickrock	Douglas fir	138	210	Douglas fir, western hemlock
	Western hemlock	---	---	
	Western redcedar	---	---	
147:				
Steiwer	---	---	---	---
Chehulpum	---	---	---	---
148:				
Steiwer	---	---	---	---
Chehulpum	---	---	---	---
149:				
Steiwer	Douglas fir	---	---	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
Chehulpum	Douglas fir	---	---	Ponderosa pine
	Oregon white oak	---	---	
150:				
Treharne	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	---	---	
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Eilertsen	Bigleaf maple	---	---	Douglas fir, western hemlock
	Douglas fir	146	226	
	Red alder	---	---	
	Western hemlock	---	---	
	Western redcedar	---	---	
Zyzzug	---	---	---	---

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
151:				
Valsetz	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Pacific silver fir	---	---	
	Western hemlock	---	---	
Yellowstone	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Pacific silver fir	---	---	
	Western hemlock	---	---	
152:				
Valsetz	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Pacific silver fir	---	---	
	Western hemlock	---	---	
Yellowstone	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Pacific silver fir	---	---	
	Western hemlock	---	---	
153:				
Valsetz	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Pacific silver fir	---	---	
	Western hemlock	---	---	
Yellowstone	Douglas fir	---	---	Douglas fir, noble fir, western hemlock
	Noble fir	---	---	
	Pacific silver fir	---	---	
	Western hemlock	---	---	
154:				
Verboort	---	---	---	---
155:				
Waldo	---	---	---	---
156:				
Waldo, high precipitation	Black cottonwood	---	---	---
	Oregon ash	---	---	
	Red alder	---	---	
157:				
Wapato	---	---	---	---
158:				
Wapato, high precipitation	Black cottonwood	---	---	---
	Oregon ash	---	---	
	Red alder	---	---	
159:				
Water	---	---	---	---

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
160:				
Wellsdale	Bigleaf maple	---	---	Douglas fir
	Douglas fir	128	190	
	Oregon white oak	---	---	
Willakenzie	Bigleaf maple	---	---	Douglas fir
	Douglas fir	120	175	
	Oregon white oak	---	---	
161:				
Wellsdale	---	---	---	---
Willakenzie	---	---	---	---
Dupee	---	---	---	---
162:				
Wellsdale, north slopes	Bigleaf maple	---	---	Douglas fir
	Douglas fir	128	190	
	Oregon white oak	---	---	
Willakenzie, north slopes	Bigleaf maple	---	---	Douglas fir
	Douglas fir	120	175	
	Oregon white oak	---	---	
Dupee, north slopes	Douglas fir	---	---	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
163:				
Willakenzie	Bigleaf maple	---	---	Douglas fir
	Douglas fir	112	158	
	Oregon white oak	---	---	
164:				
Willakenzie	Bigleaf maple	---	---	Douglas fir
	Douglas fir	110	157	
	Oregon white oak	---	---	
165:				
Willakenzie	Bigleaf maple	---	---	Douglas fir
	Douglas fir	110	157	
	Oregon white oak	---	---	
166:				
Willakenzie	Bigleaf maple	---	---	Douglas fir
	Douglas fir	110	157	
	Oregon white oak	---	---	
167:				
Willakenzie, south slopes	Bigleaf maple	---	---	Douglas fir, ponderosa pine
	Douglas fir	110	157	
	Oregon white oak	---	---	
Wellsdale, south slopes	Bigleaf maple	---	---	Douglas fir
	Douglas fir	120	175	
	Oregon white oak	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
168:				
Willakenzie	Bigleaf maple	---	---	Douglas fir, ponderosa pine
	Douglas fir	110	157	
	Oregon white oak	---	---	
Wellsdale	Bigleaf maple	---	---	Douglas fir
	Douglas fir	120	175	
	Oregon white oak	---	---	
169:				
Willamette	---	---	---	---
170:				
Willamette	---	---	---	---
171:				
Willamette	---	---	---	---
172:				
Witham	---	---	---	---
173:				
Witham	Douglas fir	---	---	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
174:				
Witzel	---	---	---	---
Ritner	---	---	---	---
175:				
Witzel	---	---	---	---
Ritner	Douglas fir	99	134	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
176:				
Witzel	---	---	---	---
Ritner	Douglas fir	99	134	Douglas fir, ponderosa pine
	Oregon white oak	---	---	
177:				
Woodburn	---	---	---	---
178:				
Woodburn	---	---	---	---
179:				
Woodburn	---	---	---	---
180:				
Woodburn	Douglas fir	---	---	Douglas fir
	Oregon white oak	---	---	

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Abiqua	89	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
2:							
Abiqua	84	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
3:							
Abiqua, high precipitation	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
4:							
Abiqua, high precipitation	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
5:							
Abiqua, rarely flooded	86	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
6:							
Alsea	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
7:							
Alsea, rarely flooded	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
8:							
Amity	94	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
9:							
Apt	55	Slight		Moderately suited		Severe	
				Slope	0.50	Low strength	1.00
				Low strength	0.50		
McDuff	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
10:							
Apt	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:							
McDuff	30	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
11:							
Aquents	97	Severe		Poorly suited		Severe	
		Wetness	1.00	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00	Wetness	0.50
				Low strength	0.50		
12:							
Awbrig	87	Slight		Poorly suited		Severe	
				Wetness	1.00	Low strength	1.00
				Ponding	0.50		
				Low strength	0.50		
13:							
Bashaw, nonflooded	89	Severe		Poorly suited		Severe	
		Wetness	1.00	Wetness	1.00	Low strength	1.00
		Stickiness/slope	0.50	Stickiness/high plasticity index	0.50		
		Low strength	0.50				
				Low strength	0.50		
				Slope	0.50		
14:							
Bashaw, flooded	90	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Stickiness/slope	0.50	Stickiness/high plasticity index	0.50		
		Low strength	0.50				
				Low strength	0.50		
				Wetness	0.50		
15:							
Bashaw, nonflooded	87	Severe		Poorly suited		Severe	
		Wetness	1.00	Ponding	1.00	Low strength	1.00
		Stickiness/slope	0.50	Wetness	1.00		
		Low strength	0.50	Stickiness/high plasticity index	0.50		
				Low strength	0.50		
16:							
Bashaw, nonflooded	87	Severe		Poorly suited		Severe	
		Wetness	1.00	Ponding	1.00	Low strength	1.00
		Stickiness/slope	0.50	Stickiness/high plasticity index	0.50		
		Low strength	0.50				
				Low strength	0.50		
				Wetness	0.50		
17:							
Bellpine	68	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
17:							
Jory, sedimentary bedrock	24	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
18:							
Bellpine	51	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Jory, sedimentary bedrock	42	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
19:							
Bellpine	52	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Jory, sedimentary bedrock	43	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
20:							
Bellpine	55	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Jory, sedimentary bedrock	42	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
21:							
Blachly	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Kilowan	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
22:							
Blachly	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Kilowan	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
23:							
Bohannon	50	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
23:							
Preacher------------	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	1.00		
24:							
Bohannon------------	50	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Preacher------------	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	1.00		
25:							
Briedwell-----------	84	Slight		Well suited		Slight	
						Strength	0.10
26:							
Briedwell-----------	94	Slight		Poorly suited		Slight	
				Slope	1.00	Strength	0.10
27:							
Burntwoods----------	50	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
Oldblue-------------	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
		Low strength	0.50				
28:							
Camas---------------	87	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
29:							
Camas, rarely flooded------------	90	Slight		Well suited		Moderate	
						Low strength	0.50
30:							
Caterl--------------	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Laderly-------------	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Romanose------------	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
31:							
Caterl--------------	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Laderly-------------	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
31:							
Romanose------------	25	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
32:							
Caterl--------------	35	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Murtip--------------	30	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Giveout-------------	25	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
33:							
Caterl--------------	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Murtip--------------	30	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Laderly-------------	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
34:							
Chapman-------------	92	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
35:							
Chapman, high precipitation------	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
36:							
Chehalem------------	91	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
37:							
Chehalem------------	92	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
				Wetness	0.50		
38:							
Chehalis------------	90	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
39:							
Chehalis, high precipitation------	95	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
40:							
Chehalis------------	92	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
41:							
Chintimini----------	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Sandiness	0.50		
Blodgett------------	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
42:							
Chintimini----------	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Sandiness	0.50		
Blodgett------------	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Fiverivers----------	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
		Low strength	0.50				
43:							
Chintimini----------	45	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Sandiness	0.50	Sandiness	0.50		
		Restrictive layer	0.50				
Grassmountain-------	45	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
44:							
Chismore------------	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Pyburn--------------	30	Severe		Moderately suited		Severe	
		Wetness	1.00	Ponding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Stickiness/slope	0.50	Wetness	0.50		
45:							
Chismore------------	60	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Pyburn--------------	25	Severe		Moderately suited		Severe	
		Wetness	1.00	Ponding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Stickiness/slope	0.50	Wetness	0.50		
46:							
Cloquato------------	90	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47:							
Cloquato, high precipitation------	95	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
48:							
Coburg, occasionally flooded------------	45	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Coburg, rarely flooded------------	44	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
49:							
Coburg--------------	88	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
50:							
Coburg, rarely flooded------------	89	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
51:							
Concord-------------	92	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
52:							
Conser--------------	86	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
53:							
Dayton--------------	93	Moderate		Poorly suited		Severe	
		Stickiness/slope	0.50	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
54:							
Dayton, clay substratum----------	92	Moderate		Poorly suited		Severe	
		Stickiness/slope	0.50	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
55:							
Digger--------------	50	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Bohannon------------	40	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
56:							
Digger--------------	40	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Remote--------------	35	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Umpcoos-------------	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
57:							
Digger--------------	40	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Umpcoos-------------	35	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Remote--------------	20	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
58:							
Dixonville----------	46	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Gellatly------------	43	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
59:							
Dixonville----------	55	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Gellatly------------	33	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
60:							
Dixonville----------	34	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Gellatly------------	28	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Witham--------------	20	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Stickiness/high plasticity index	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Slope	0.50		
				Wetness	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
61:							
Dupee	86	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Wetness	0.50		
				Slope	0.50		
62:							
Dupee	87	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
63:							
Elsie	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
64:							
Elsie	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
65:							
Fiverivers	35	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
		Low strength	0.50				
Grassmountain	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
		Low strength	0.50				
Chintimini	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Sandiness	0.50		
66:							
Fluvents	53	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Sandiness	0.50				
Fluvaquents	37	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
67:							
Fluvents, high precipitation	50	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Sandiness	0.50				
Fluvaquents, high precipitation	45	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68:							
Formader------------	50	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Hemcross------------	35	Slight		Moderately suited		Severe	
				Slope	0.50	Low strength	1.00
69:							
Formader------------	50	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Hemcross------------	30	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50				
70:							
Formader------------	35	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Klistan-------------	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Hemcross------------	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50				
71:							
Gelderman-----------	47	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Slope	0.50		
Jory, basalt bedrock	42	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Stickiness/slope	0.50	Slope	0.50		
72:							
Goodin--------------	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Dupee---------------	21	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Wetness	0.50		
				Slope	0.50		
Chehulpum-----------	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
73:							
Goodin--------------	31	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
73:							
Chehulpum	21	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Dupee	21	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
74:							
Grassmountain	40	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Fiverivers	30	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Chintimini	15	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Sandiness	0.50	Sandiness	0.50		
		Restrictive layer	0.50				
75:							
Harslow	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
Kilchis	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	
76:							
Harslow	35	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
Klistan	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Low strength	0.50	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Slope	0.50		
78:							
Hazelair	81	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
				Wetness	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
79:							
Hazelair------------	81	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
				Wetness	0.50		
80:							
Hazelair------------	82	Moderate		Poorly suited		Severe	
		Stickiness/slope	0.50	Slope	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.82		
				Low strength	0.50		
81:							
Helmick-------------	86	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Slope	0.50		
				Wetness	0.50		
82:							
Helvetia------------	94	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
83:							
Hemcross------------	55	Slight		Moderately suited		Severe	
				Slope	0.50	Low strength	1.00
Klistan-------------	35	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
84:							
Hemcross------------	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50				
Klistan-------------	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
85:							
Holcomb-------------	85	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Low strength	0.50	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
86:							
Honeygrove----------	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Peavine, sedimentary bedrock------------	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
87:							
Honeygrove----------	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
87:							
Peavine, sedimentary bedrock	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
88:							
Honeygrove, basalt bedrock	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Peavine, basalt bedrock	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
89:							
Honeygrove, basalt bedrock	45	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Peavine, basalt bedrock	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
90:							
Honeygrove, basalt bedrock	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Shivigny	30	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
91:							
Jory, basalt bedrock	86	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Stickiness/slope	0.50	Slope	0.50		
92:							
Jory, basalt bedrock	86	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
93:							
Jory, basalt bedrock	84	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
94:							
Jory, sedimentary bedrock	81	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
95:							
Jory, sedimentary bedrock	81	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
96:							
Jory, sedimentary bedrock	86	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
97:							
Jory, sedimentary bedrock	72	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Dupee	22	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Wetness	0.50		
				Slope	0.50		
98:							
Jory, basalt bedrock	57	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
Gelderman	20	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
99:							
Jory, basalt bedrock	55	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
Nekia	32	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
100:							
Jory, basalt bedrock	55	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
Nekia	32	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
101:							
Kirkendall	40	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Nekoma	30	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Quosatana	15	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Wetness	1.00	Low strength	0.50		
		Low strength	0.50	Wetness	0.50		
102:							
Klistan	50	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Harslow	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
103:							
Klistan	40	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Harslow	25	Moderate		Moderately suited		Slight	
		Restrictive layer	0.50	Slope	0.50	Strength	0.10
				Sandiness	0.50		
Hemcross	20	Slight		Moderately suited		Severe	
				Slope	0.50	Low strength	1.00
104:							
Laderly	35	Moderate		Moderately suited		Slight	
		Restrictive layer	0.50	Slope	0.50	Strength	0.10
Murtip	30	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Giveout	25	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
105:							
Linslaw	91	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
106:							
Linslaw	92	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
107:							
Lurnick	60	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Luckiamute	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
108:							
Lurnick	40	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Luckiamute	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Maryspeak	20	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
				Sandiness	0.50		
109:							
MacDunn	44	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Price	28	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Ritner	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
110:							
Malabon	89	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
111:							
Malabon, rarely flooded	89	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
112:							
Maryspeak	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
				Sandiness	0.50		
113:							
McAlpin	82	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
114:							
McAlpin	84	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
115:							
McAlpin, high precipitation	90	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
116:							
McAlpin, high precipitation	90	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
117:							
McAlpin, rarely flooded	81	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
118:							
McBee	92	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
119:							
McBee, nonflooded	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
120:							
Meda	40	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Slope	0.50	Low strength	0.50
Treharne	25	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Wasson	15	Severe		Moderately suited		Severe	
		Wetness	1.00	Flooding	0.50	Low strength	1.00
		Flooding	0.50	Low strength	0.50		
		Low strength	0.50	Wetness	0.50		
121:							
Mulkey	85	Severe		Poorly suited		Severe	
		Low strength	1.00	Low strength	1.00	Low strength	1.00
		Restrictive layer	0.50	Slope	0.50		
122:							
Mulkey	85	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	1.00	Low strength	1.00		
123:							
Murtip	45	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Giveout	25	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Laderly	20	Moderate		Moderately suited		Slight	
		Restrictive layer	0.50	Slope	0.50	Strength	0.10
124:							
Nekoma	50	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Fluvaquents	30	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Wetness	1.00	Low strength	0.50		
		Low strength	0.50				

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
125:							
Newberg	92	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
126:							
Newberg, high precipitation	95	Moderate		Moderately suited		Moderate	
		Flooding	0.50	Flooding	0.50	Low strength	0.50
127:							
Newberg	92	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
128:							
Oldblue	55	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Burntwoods	35	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
				Sandiness	0.50		
129:							
Panther	81	Moderate		Poorly suited		Severe	
		Stickiness/slope	0.50	Wetness	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Slope	0.50		
130:							
Pengra	83	Moderate		Poorly suited		Severe	
		Stickiness/slope	0.50	Wetness	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Slope	0.50		
131:							
Philomath	76	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Slope	0.50		
132:							
Pilchuck	79	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Severe		Poorly suited		Severe	
		Low strength	1.00	Low strength	1.00	Low strength	1.00
				Slope	0.50		
Blachly	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Bohannon	20	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
135:							
Preacher	50	Severe		Poorly suited		Severe	
		Low strength	1.00	Low strength	1.00	Low strength	1.00
				Slope	0.50		
Bohannon	30	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
136:							
Preacher	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	1.00		
Bohannon	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Slickrock	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
137:							
Price	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
MacDunn	30	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Ritner	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Sandiness	0.50				
140:							
Santiam	91	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
141:							
Santiam	93	Moderate		Poorly suited		Severe	
		Low strength	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
142:							
Sevencedars	55	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Newanna	30	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
143:							
Sevencedars	35	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
Newanna	30	Moderate		Moderately suited		Slight	
		Restrictive layer	0.50	Slope	0.50	Strength	0.10
Woodspoint	25	Slight		Poorly suited		Severe	
				Low strength	1.00	Low strength	1.00
				Slope	0.50		
144:							
Sevencedars	50	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Newanna	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Woodspoint	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	1.00		
145:							
Shivigny	45	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Honeygrove, basalt bedrock	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
146:							
Slickrock	90	Slight		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
147:							
Steiwer	49	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Chehulpum	41	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
148:							
Steiwer	50	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Chehulpum	40	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
149:							
Steiwer	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
149:							
Chehulpum	39	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
150:							
Treharne	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Eilertsen	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Zyzzug	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
151:							
Valsetz	55	Severe		Moderately suited		Slight	
		Stoniness	1.00	Slope	0.50	Strength	0.10
		Restrictive layer	0.50				
Yellowstone	30	Severe		Moderately suited		Slight	
		Stoniness	1.00	Slope	0.50	Strength	0.10
		Restrictive layer	1.00				
152:							
Valsetz	65	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Yellowstone	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
153:							
Valsetz	65	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Yellowstone	20	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
154:							
Verboort	97	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Stickiness/slope	0.50	Wetness	1.00		
		Low strength	0.50	Low strength	0.50		
155:							
Waldo	95	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
				Low strength	0.50		
				Wetness	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
156:							
Waldo, high precipitation------	95	Severe		Poorly suited		Severe	
		Wetness	1.00	Ponding	1.00	Low strength	1.00
		Flooding	0.50	Flooding	0.50		
				Low strength	0.50		
				Wetness	0.50		
157:							
Wapato--------------	89	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
158:							
Wapato, high precipitation------	95	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
159:							
Water---------------	100	Not rated		Not rated		Not rated	
160:							
Wellsdale-----------	60	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Willakenzie---------	33	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
161:							
Wellsdale-----------	54	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Willakenzie---------	33	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Dupee---------------	10	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Wetness	0.50		
162:							
Wellsdale, north slopes-------------	60	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
162:							
Willakenzie, north slopes	27	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Dupee, north slopes	10	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
163:							
Willakenzie	83	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
164:							
Willakenzie	85	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
165:							
Willakenzie	86	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
166:							
Willakenzie	79	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
167:							
Willakenzie, south slopes	78	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Wellsdale, south slopes	15	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
168:							
Willakenzie	79	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Wellsdale	15	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
169:							
Willamette	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
170:							
Willamette----------	84	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
171:							
Willamette----------	97	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
172:							
Witham--------------	79	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Stickiness/high plasticity index	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Slope	0.50		
				Wetness	0.50		
173:							
Witham--------------	75	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Stickiness/high plasticity index	0.50		
				Low strength	0.50		
				Wetness	0.50		
174:							
Witzel--------------	46	Severe		Moderately suited		Slight	
		Stoniness	1.00	Slope	0.50	Strength	0.10
		Restrictive layer	1.00				
Ritner--------------	44	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Low strength	0.50	Low strength	1.00
		Low strength	0.50	Slope	0.50		
175:							
Witzel--------------	46	Severe		Poorly suited		Slight	
		Restrictive layer	1.00	Slope	1.00	Strength	0.10
		Slope	0.50				
Ritner--------------	44	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
176:							
Witzel--------------	46	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Ritner--------------	44	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
177:							
Woodburn------------	92	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 8.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
178:							
Woodburn------------	92	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
179:							
Woodburn------------	94	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
180:							
Woodburn------------	95	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
1:							
Abiqua	89	Slight		Slight		Moderately suited	
						Low strength	0.50
2:							
Abiqua	84	Slight		Slight		Moderately suited	
						Low strength	0.50
3:							
Abiqua, high precipitation	90	Slight		Slight		Moderately suited	
						Low strength	0.50
4:							
Abiqua, high precipitation	95	Slight		Slight		Moderately suited	
						Low strength	0.50
5:							
Abiqua, rarely flooded	86	Slight		Slight		Moderately suited	
						Low strength	0.50
6:							
Alsea	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
7:							
Alsea, rarely flooded	95	Slight		Slight		Moderately suited	
						Low strength	0.50
8:							
Amity	94	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
9:							
Apt	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
McDuff	30	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
10:							
Apt	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
10:							
McDuff	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
11:							
Aquents	97	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
12:							
Awbrig	87	Slight		Slight		Poorly suited	
						Wetness	1.00
						Ponding	0.50
						Low strength	0.50
13:							
Bashaw, nonflooded	89	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Wetness	1.00
						Stickiness/high plasticity index	0.50
						Low strength	0.50
						Slope	0.50
14:							
Bashaw, flooded	90	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Stickiness/high plasticity index	0.50
						Low strength	0.50
						Wetness	0.50
15:							
Bashaw, nonflooded	87	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Stickiness/high plasticity index	0.50
						Low strength	0.50
16:							
Bashaw, nonflooded	87	Slight		Slight		Poorly suited	
						Ponding	1.00
						Stickiness/high plasticity index	0.50
						Low strength	0.50
						Wetness	0.50
17:							
Bellpine	68	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Jory, sedimentary bedrock	24	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
18:							
Bellpine------------	51	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Jory, sedimentary bedrock------------	42	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
19:							
Bellpine------------	52	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Jory, sedimentary bedrock------------	43	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
20:							
Bellpine------------	55	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Jory, sedimentary bedrock------------	42	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
21:							
Blachly-------------	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Kilowan-------------	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
22:							
Blachly-------------	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Kilowan-------------	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
23:							
Bohannon------------	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Preacher------------	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
24:							
Bohannon-----------	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Preacher-----------	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
25:							
Briedwell----------	84	Slight		Slight		Well suited	
26:							
Briedwell----------	94	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Slope	1.00
27:							
Burntwoods---------	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
Oldblue------------	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
28:							
Camas--------------	87	Slight		Slight		Poorly suited	
						Flooding	1.00
29:							
Camas, rarely flooded-----------	90	Slight		Slight		Well suited	
30:							
Caterl-------------	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Laderly------------	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Romanose-----------	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
31:							
Caterl-------------	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Laderly------------	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Romanose-----------	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
32:							
Caterl-------------	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Murtip-------------	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32:							
Giveout	25	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
33:							
Caterl	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Murtip	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Laderly	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
34:							
Chapman	92	Slight		Slight		Moderately suited	
						Low strength	0.50
35:							
Chapman, high precipitation	95	Slight		Slight		Moderately suited	
						Low strength	0.50
36:							
Chehalem	91	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
37:							
Chehalem	92	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
						Wetness	0.50
38:							
Chehalis	90	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
39:							
Chehalis, high precipitation	95	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
40:							
Chehalis	92	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
41:							
Chintimini	45	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
Blodgett	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
42:							
Chintimini	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
Blodgett	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Fiverivers	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
43:							
Chintimini	45	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Sandiness	0.50
Grassmountain	45	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
44:							
Chismore	55	Slight		Slight		Moderately suited	
						Low strength	0.50
Pyburn	30	Slight		Slight		Moderately suited	
						Ponding	0.50
						Low strength	0.50
						Wetness	0.50
45:							
Chismore	60	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Pyburn	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Ponding	0.50
						Low strength	0.50
						Wetness	0.50
46:							
Cloquato	90	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
47:							
Cloquato, high precipitation	95	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
48:							
Coburg, occasionally flooded	45	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
Coburg, rarely flooded	44	Slight		Slight		Moderately suited	
						Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
49:							
Coburg	88	Slight		Slight		Moderately suited	
						Low strength	0.50
50:							
Coburg, rarely flooded	89	Slight		Slight		Moderately suited	
						Low strength	0.50
51:							
Concord	92	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
52:							
Conser	86	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
53:							
Dayton	93	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
54:							
Dayton, clay substratum	92	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
55:							
Digger	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Bohannon	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
56:							
Digger	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Remote	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Umpcoos	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
57:							
Digger	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Umpcoos	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Remote	20	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58:							
Dixonville	46	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Gellatly	43	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
59:							
Dixonville	55	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Gellatly	33	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
60:							
Dixonville	34	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Gellatly	28	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Witham	20	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Stickiness/high plasticity index	0.50
						Low strength	0.50
						Slope	0.50
						Wetness	0.50
61:							
Dupee	86	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
						Slope	0.50
62:							
Dupee	87	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Wetness	0.50
63:							
Elsie	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
64:							
Elsie	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
65:							
Fiverivers	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
65:							
Grassmountain-------	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Chintimini----------	25	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
66:							
Fluvents------------	53	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Fluvaquents---------	37	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
67:							
Fluvents, high precipitation------	50	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Fluvaquents, high precipitation------	45	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
68:							
Formader------------	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Hemcross------------	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
69:							
Formader------------	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Hemcross------------	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
70:							
Formader------------	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Klistan-------------	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Hemcross------------	20	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
71:							
Gelderman-----------	47	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
71:							
Jory, basalt bedrock	42	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
72:							
Goodin-------------	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Dupee--------------	21	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
						Slope	0.50
Chehulpum----------	20	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
73:							
Goodin-------------	31	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Chehulpum----------	21	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Dupee--------------	21	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Wetness	0.50
74:							
Grassmountain-------	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Fiverivers----------	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Chintimini----------	15	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Sandiness	0.50
75:							
Harslow------------	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
Kilchis------------	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	
76:							
Harslow------------	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
76:							
Klistan	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
						Slope	0.50
78:							
Hazelair	81	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Wetness	0.50
79:							
Hazelair	81	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Wetness	0.50
80:							
Hazelair	82	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Slope	1.00
						Wetness	0.82
						Low strength	0.50
81:							
Helmick	86	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
						Wetness	0.50
82:							
Helvetia	94	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
83:							
Hemcross	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Klistan	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
84:							
Hemcross	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Klistan	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
85:							
Holcomb	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
86:							
Honeygrove----------	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Peavine, sedimentary bedrock-----------	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
87:							
Honeygrove----------	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Peavine, sedimentary bedrock-----------	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
88:							
Honeygrove, basalt bedrock-----------	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Peavine, basalt bedrock-----------	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
89:							
Honeygrove, basalt bedrock-----------	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Peavine, basalt bedrock-----------	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
90:							
Honeygrove, basalt bedrock-----------	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Shivigny-----------	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
91:							
Jory, basalt bedrock	86	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
92:							
Jory, basalt bedrock	86	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
93:							
Jory, basalt bedrock	84	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
94:							
Jory, sedimentary bedrock	81	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
95:							
Jory, sedimentary bedrock	81	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
96:							
Jory, sedimentary bedrock	86	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
97:							
Jory, sedimentary bedrock	72	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Dupee	22	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
						Slope	0.50
98:							
Jory, basalt bedrock	57	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Gelderman	20	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
99:							
Jory, basalt bedrock	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Nekia	32	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
100:							
Jory, basalt bedrock	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Nekia	32	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
101:							
Kirkendall	40	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Nekoma	30	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Quosatana	15	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
102:							
Klistan	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Harslow	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
103:							
Klistan	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Harslow	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Sandiness	0.50
Hemcross	20	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
104:							
Laderly	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Murtip	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Giveout	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
105:							
Linslaw	91	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
106:							
Linslaw	92	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
107:							
Lurnick	60	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Luckiamute	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
108:							
Lurnick	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Luckiamute	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Maryspeak	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
109:							
MacDunn	44	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Price	28	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Ritner	20	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
110:							
Malabon	89	Slight		Slight		Moderately suited	
						Low strength	0.50
111:							
Malabon, rarely flooded	89	Slight		Slight		Moderately suited	
						Low strength	0.50
112:							
Maryspeak	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Sandiness	0.50
113:							
McAlpin	82	Slight		Slight		Moderately suited	
						Low strength	0.50
114:							
McAlpin	84	Slight		Slight		Moderately suited	
						Low strength	0.50
115:							
McAlpin, high precipitation	90	Slight		Slight		Moderately suited	
						Low strength	0.50
116:							
McAlpin, high precipitation	90	Slight		Slight		Moderately suited	
						Low strength	0.50
117:							
McAlpin, rarely flooded	81	Slight		Slight		Moderately suited	
						Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
118:							
McBee	92	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
119:							
McBee, nonflooded	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
120:							
Meda	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Treharne	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Wasson	15	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
						Wetness	0.50
121:							
Mulkey	85	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50
122:							
Mulkey	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
123:							
Murtip	45	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Giveout	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Laderly	20	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
124:							
Nekoma	50	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Fluvaquents	30	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
125:							
Newberg	92	Slight		Slight		Poorly suited	
						Flooding	1.00
126:							
Newberg, high precipitation	95	Slight		Slight		Moderately suited	
						Flooding	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
127:							
Newberg	92	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
128:							
Oldblue	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Burntwoods	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Sandiness	0.50
129:							
Panther	81	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Wetness	1.00
						Low strength	0.50
						Slope	0.50
130:							
Pengra	83	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Wetness	1.00
						Low strength	0.50
						Slope	0.50
131:							
Philomath	76	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
132:							
Pilchuck	79	Slight		Slight		Poorly suited	
						Flooding	1.00
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50
Blachly	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Bohannon	20	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
135:							
Preacher	50	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50
Bohannon	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
136:							
Preacher	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
Bohannon	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Slickrock	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
137:							
Price	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
MacDunn	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Ritner	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Slight		Slight		Moderately suited	
						Low strength	0.50
140:							
Santiam	91	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
141:							
Santiam	93	Slight		Severe		Poorly suited	
				Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Wetness	0.50
142:							
Sevencedars	55	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Newanna	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
143:							
Sevencedars	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Newanna	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Woodspoint	25	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
144:							
Sevencedars	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Newanna	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Woodspoint	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
145:							
Shivigny	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Honeygrove, basalt bedrock	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
146:							
Slickrock	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
147:							
Steiwer	49	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Chehulpum	41	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
148:							
Steiwer	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Chehulpum	40	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
149:							
Steiwer	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Chehulpum	39	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
150:							
Treharne	35	Slight		Slight		Moderately suited	
						Low strength	0.50
Eilertsen	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
150:							
Zyzzug	20	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
151:							
Valsetz	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Yellowstone	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
152:							
Valsetz	65	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Yellowstone	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
153:							
Valsetz	65	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Yellowstone	20	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
154:							
Verboort	97	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
155:							
Waldo	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
156:							
Waldo, high precipitation	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	0.50
						Low strength	0.50
						Wetness	0.50
157:							
Wapato	89	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
158:							
Wapato, high precipitation------	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
159:							
Water---------------	100	Not rated		Not rated		Not rated	
160:							
Wellsdale-----------	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Willakenzie---------	33	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
161:							
Wellsdale-----------	54	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Willakenzie---------	33	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
Dupee---------------	10	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
162:							
Wellsdale, north slopes-------------	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Willakenzie, north slopes-------------	27	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Dupee, north slopes	10	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Wetness	0.50
163:							
Willakenzie---------	83	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
164:							
Willakenzie---------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
165:							
Willakenzie	86	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
166:							
Willakenzie	79	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
167:							
Willakenzie, south slopes	78	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Wellsdale, south slopes	15	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
168:							
Willakenzie	79	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Wellsdale	15	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
169:							
Willamette	95	Slight		Slight		Moderately suited	
						Low strength	0.50
170:							
Willamette	84	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
171:							
Willamette	97	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
172:							
Witham	79	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Stickiness/high plasticity index	0.50
						Low strength	0.50
						Slope	0.50
						Wetness	0.50
173:							
Witham	75	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Stickiness/high plasticity index	0.50
						Low strength	0.50
						Wetness	0.50

Table 9.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
174:							
Witzel	46	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Ritner	44	Slight		Slight		Moderately suited	
						Low strength	0.50
						Slope	0.50
175:							
Witzel	46	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Ritner	44	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Low strength	0.50
176:							
Witzel	46	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Ritner	44	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
177:							
Woodburn	92	Slight		Slight		Moderately suited	
						Low strength	0.50
178:							
Woodburn	92	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
179:							
Woodburn	94	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
180:							
Woodburn	95	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 10.--Forestland Planting and Harvesting

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
1:							
Abiqua--------------	89	Well suited		Well suited		Moderately suited	
						Low strength	0.50
2:							
Abiqua--------------	84	Well suited		Well suited		Moderately suited	
						Low strength	0.50
3:							
Abiqua, high precipitation------	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
4:							
Abiqua, high precipitation------	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
5:							
Abiqua, rarely flooded-----------	86	Well suited		Well suited		Moderately suited	
						Low strength	0.50
6:							
Alsea---------------	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
7:							
Alsea, rarely flooded-----------	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
8:							
Amity---------------	94	Well suited		Well suited		Moderately suited	
						Low strength	0.50
9:							
Apt-----------------	55	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
McDuff--------------	30	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
10:							
Apt-----------------	50	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
McDuff--------------	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
11:							
Aquents	97	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
						Low strength	0.50
12:							
Awbrig	87	Poorly suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Low strength	0.50
13:							
Bashaw, nonflooded	89	Poorly suited		Poorly suited		Poorly suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Wetness	1.00
				Slope	0.50	Low strength	0.50
						Stickiness/high plasticity index	0.50
14:							
Bashaw, flooded	90	Poorly suited		Poorly suited		Poorly suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Wetness	1.00
						Low strength	0.50
						Stickiness/high plasticity index	0.50
15:							
Bashaw, nonflooded	87	Poorly suited		Poorly suited		Poorly suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Wetness	1.00
						Low strength	0.50
						Stickiness/high plasticity index	0.50
16:							
Bashaw, nonflooded	87	Poorly suited		Poorly suited		Poorly suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Wetness	1.00
						Low strength	0.50
						Stickiness/high plasticity index	0.50
17:							
Bellpine	68	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
Jory, sedimentary bedrock	24	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
18:							
Bellpine	51	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
18:							
Jory, sedimentary bedrock	42	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50		
19:							
Bellpine	52	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
Jory, sedimentary bedrock	43	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
20:							
Bellpine	55	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
Jory, sedimentary bedrock	42	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
21:							
Blachly	50	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Kilowan	40	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
				Rock fragments	0.50		
22:							
Blachly	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
Kilowan	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Rock fragments	0.50		
23:							
Bohannon	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Preacher	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Low strength	1.00
						Slope	1.00

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
24:							
Bohannon	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Preacher	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Low strength	1.00
						Slope	1.00
25:							
Briedwell	84	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
26:							
Briedwell	94	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
27:							
Burntwoods	50	Moderately suited		Unsuited		Poorly suited	
		Sandiness	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
		Slope	0.50	Sandiness	0.50		
Oldblue	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
28:							
Camas	87	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
29:							
Camas, rarely flooded	90	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
30:							
Caterl	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50		
Laderly	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Romanose	20	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00	Sandiness	0.50
31:							
Caterl	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50		
Laderly	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
31:							
Romanose	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00	Sandiness	0.50
32:							
Caterl	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50		
Murtip	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
Giveout	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
33:							
Caterl	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50		
Murtip	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
Laderly	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
34:							
Chapman	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50
35:							
Chapman, high precipitation	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
36:							
Chehalem	91	Well suited		Well suited		Moderately suited	
						Low strength	0.50
37:							
Chehalem	92	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
38:							
Chehalis	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
39:							
Chehalis, high precipitation	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
40:							
Chehalis	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
41:							
Chintimini	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Sandiness	0.50	Rock fragments	0.75	Sandiness	0.50
		Rock fragments	0.50	Sandiness	0.50		
Blodgett	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00		
42:							
Chintimini	40	Moderately suited		Unsuited		Poorly suited	
		Sandiness	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
		Slope	0.50	Sandiness	0.50		
Blodgett	30	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		
Fiverivers	20	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75		
43:							
Chintimini	45	Moderately suited		Poorly suited		Moderately suited	
		Sandiness	0.50	Slope	0.75	Slope	0.50
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
				Sandiness	0.50		
Grassmountain	45	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
44:							
Chismore	55	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Pyburn	30	Moderately suited		Moderately suited		Poorly suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Wetness	1.00
						Low strength	0.50
45:							
Chismore	60	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Pyburn	25	Moderately suited		Moderately suited		Poorly suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Wetness	1.00
				Slope	0.50	Low strength	0.50
46:							
Cloquato	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
47:							
Cloquato, high precipitation	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
48:							
Coburg, occasionally flooded	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Coburg, rarely flooded	44	Well suited		Well suited		Moderately suited	
						Low strength	0.50
49:							
Coburg	88	Well suited		Well suited		Moderately suited	
						Low strength	0.50
50:							
Coburg, rarely flooded	89	Well suited		Well suited		Moderately suited	
						Low strength	0.50
51:							
Concord	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50
52:							
Conser	86	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
53:							
Dayton	93	Well suited		Well suited		Moderately suited	
						Low strength	0.50
54:							
Dayton, clay substratum	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50
55:							
Digger	50	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
Bohannon	40	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
56:							
Digger	40	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75		
Remote	35	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75		
Umpcoos	20	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
57:							
Digger	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Umpcoos	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00		
Remote	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
58:							
Dixonville	46	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
Gellatly	43	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
59:							
Dixonville	55	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
Gellatly	33	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
60:							
Dixonville	34	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
Gellatly	28	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
Witham	20	Poorly suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Low strength	0.50
				Slope	0.50	Stickiness/high plasticity index	0.50
61:							
Dupee	86	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
62:							
Dupee	87	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
63:							
Elsie---------------	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
64:							
Elsie---------------	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
65:							
Fiverivers----------	35	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75		
Grassmountain-------	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Chintimini----------	25	Moderately suited		Unsuited		Poorly suited	
		Sandiness	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
		Slope	0.50	Sandiness	0.50		
66:							
Fluvents------------	53	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Fluvaquents---------	37	Well suited		Well suited		Moderately suited	
						Low strength	0.50
67:							
Fluvents, high precipitation------	50	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Fluvaquents, high precipitation------	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
68:							
Formader------------	50	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
Hemcross------------	35	Well suited		Moderately suited		Well suited	
				Slope	0.50		
69:							
Formader------------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Hemcross------------	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
70:							
Formader------------	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
70:							
Klistan	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Hemcross	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
71:							
Gelderman	47	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Jory, basalt bedrock	42	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
72:							
Goodin	30	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Dupee	21	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Chehulpum	20	Moderately suited		Moderately suited		Moderately suited	
		Restrictive layer	0.50	Slope	0.50	Low strength	0.50
73:							
Goodin	31	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
Chehulpum	21	Moderately suited		Poorly suited		Moderately suited	
		Restrictive layer	0.50	Slope	0.75	Low strength	0.50
Dupee	21	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
74:							
Grassmountain	40	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
Fiverivers	30	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
Chintimini	15	Moderately suited		Poorly suited		Moderately suited	
		Sandiness	0.50	Slope	0.75	Slope	0.50
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
				Sandiness	0.50		
75:							
Harslow	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Sandiness	0.50	Rock fragments	0.75	Sandiness	0.50
		Rock fragments	0.50	Sandiness	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
75:							
Kilchis	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Rock outcrop	15	Not rated		Not rated		Not rated	
76:							
Harslow	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Sandiness	0.50	Rock fragments	0.75	Sandiness	0.50
		Rock fragments	0.50	Sandiness	0.50		
Klistan	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
78:							
Hazelair	81	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50		
79:							
Hazelair	81	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
80:							
Hazelair	82	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
81:							
Helmick	86	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
82:							
Helvetia	94	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
83:							
Hemcross	55	Well suited		Moderately suited		Well suited	
				Slope	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
83:							
Klistan	35	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
84:							
Hemcross	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
Klistan	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
85:							
Holcomb	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
86:							
Honeygrove	50	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
Peavine, sedimentary bedrock	40	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
87:							
Honeygrove	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
Peavine, sedimentary bedrock	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
88:							
Honeygrove, basalt bedrock	50	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
Peavine, basalt bedrock	35	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
89:							
Honeygrove, basalt bedrock	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
89:							
Peavine, basalt bedrock	40	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
90:							
Honeygrove, basalt bedrock	55	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness/high plasticity index	0.50		
Shivigny	30	Moderately suited		Poorly suited		Well suited	
		Stickiness/high plasticity index	0.50	Rock fragments	0.75		
		Rock fragments	0.50	Slope	0.50		
				Stickiness/high plasticity index	0.50		
91:							
Jory, basalt bedrock	86	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
92:							
Jory, basalt bedrock	86	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50		
93:							
Jory, basalt bedrock	84	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
94:							
Jory, sedimentary bedrock	81	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
95:							
Jory, sedimentary bedrock	81	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50		
96:							
Jory, sedimentary bedrock	86	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
97:							
Jory, sedimentary bedrock	72	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
Dupee	22	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
98:							
Jory, basalt bedrock	57	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
Gelderman	20	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
99:							
Jory, basalt bedrock	55	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50		
Nekia	32	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
100:							
Jory, basalt bedrock	55	Moderately suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness/high plasticity index	0.50	Slope	0.50
Nekia	32	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
101:							
Kirkendall	40	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Nekoma	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Quosatana	15	Well suited		Well suited		Poorly suited	
						Wetness	1.00
						Low strength	0.50
102:							
Klistan	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Harslow	30	Moderately suited		Unsuited		Poorly suited	
		Sandiness	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
		Slope	0.50	Sandiness	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
103:							
Klistan	40	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
Harslow	25	Moderately suited		Poorly suited		Moderately suited	
		Sandiness	0.50	Rock fragments	0.75	Sandiness	0.50
		Rock fragments	0.50	Slope	0.50		
				Sandiness	0.50		
Hemcross	20	Well suited		Moderately suited		Well suited	
				Slope	0.50		
104:							
Laderly	35	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
Murtip	30	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Giveout	25	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
105:							
Linslaw	91	Well suited		Well suited		Moderately suited	
						Low strength	0.50
106:							
Linslaw	92	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
107:							
Lurnick	60	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00		
Luckiamute	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00		
108:							
Lurnick	40	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		
Luckiamute	30	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		
Maryspeak	20	Moderately suited		Unsuited		Poorly suited	
		Sandiness	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Sandiness	0.50
		Slope	0.50	Sandiness	0.50		
109:							
MacDunn	44	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
109:							
Price	28	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
Ritner	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
110:							
Malabon	89	Well suited		Well suited		Moderately suited	
						Low strength	0.50
111:							
Malabon, rarely flooded	89	Well suited		Well suited		Moderately suited	
						Low strength	0.50
112:							
Maryspeak	90	Moderately suited		Poorly suited		Moderately suited	
		Sandiness	0.50	Rock fragments	0.75	Sandiness	0.50
		Rock fragments	0.50	Slope	0.50		
				Sandiness	0.50		
113:							
McAlpin	82	Well suited		Well suited		Moderately suited	
						Low strength	0.50
114:							
McAlpin	84	Well suited		Well suited		Moderately suited	
						Low strength	0.50
115:							
McAlpin, high precipitation	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
116:							
McAlpin, high precipitation	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
117:							
McAlpin, rarely flooded	81	Well suited		Well suited		Moderately suited	
						Low strength	0.50
118:							
McBee	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50
119:							
McBee, nonflooded	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
120:							
Meda	40	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
120:							
Treharne	25	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Wasson	15	Well suited		Well suited		Poorly suited	
						Wetness	1.00
						Low strength	0.50
121:							
Mulkey	85	Well suited		Moderately suited		Poorly suited	
				Slope	0.50	Low strength	1.00
				Rock fragments	0.50		
122:							
Mulkey	85	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Rock fragments	0.50	Slope	1.00
123:							
Murtip	45	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Giveout	25	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
Laderly	20	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
124:							
Nekoma	50	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Fluvaquents	30	Well suited		Well suited		Poorly suited	
						Wetness	1.00
						Low strength	0.50
125:							
Newberg	92	Well suited		Well suited		Well suited	
126:							
Newberg, high precipitation	95	Well suited		Well suited		Well suited	
127:							
Newberg	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50
128:							
Oldblue	55	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
Burntwoods	35	Moderately suited		Poorly suited		Moderately suited	
		Sandiness	0.50	Rock fragments	0.75	Sandiness	0.50
		Rock fragments	0.50	Slope	0.50		
				Sandiness	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
129:							
Panther	81	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
130:							
Pengra	83	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
131:							
Philomath	76	Moderately suited		Moderately suited		Moderately suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
				Rock fragments	0.50		
				Slope	0.50		
132:							
Pilchuck	79	Well suited		Well suited		Well suited	
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Well suited		Moderately suited		Poorly suited	
				Slope	0.50	Low strength	1.00
Blachly	30	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Bohannon	20	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
135:							
Preacher	50	Well suited		Moderately suited		Poorly suited	
				Slope	0.50	Low strength	1.00
Bohannon	30	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
136:							
Preacher	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Low strength	1.00
						Slope	1.00
Bohannon	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Slickrock	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
137:							
Price	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
137:							
MacDunn	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
Ritner	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
140:							
Santiam	91	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
141:							
Santiam	93	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
142:							
Sevencedars	55	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Newanna	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00		
143:							
Sevencedars	35	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
Newanna	30	Moderately suited		Unsuited		Well suited	
		Rock fragments	0.50	Rock fragments	1.00		
				Slope	0.50		
Woodspoint	25	Well suited		Moderately suited		Poorly suited	
				Slope	0.50	Low strength	1.00
				Rock fragments	0.50		
144:							
Sevencedars	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Newanna	20	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		
Woodspoint	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Rock fragments	0.50	Slope	1.00

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
145:							
Shivigny	45	Moderately suited		Unsuited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75		
		Rock fragments	0.50	Stickiness/high plasticity index	0.50		
Honeygrove, basalt bedrock	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Low strength	0.50
146:							
Slickrock	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
147:							
Steiwer	49	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Chehulpum	41	Moderately suited		Moderately suited		Moderately suited	
		Restrictive layer	0.50	Slope	0.50	Low strength	0.50
148:							
Steiwer	50	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Chehulpum	40	Moderately suited		Poorly suited		Moderately suited	
		Restrictive layer	0.50	Slope	0.75	Low strength	0.50
						Slope	0.50
149:							
Steiwer	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
Chehulpum	39	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Restrictive layer	0.50			Low strength	0.50
150:							
Treharne	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Eilertsen	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Zyzzug	20	Well suited		Well suited		Moderately suited	
						Low strength	0.50
151:							
Valsetz	55	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
151:							
Yellowstone	30	Moderately suited		Unsuited		Well suited	
		Rock fragments	0.50	Rock fragments	1.00		
				Slope	0.50		
152:							
Valsetz	65	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75		
Yellowstone	20	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		
153:							
Valsetz	65	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Yellowstone	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00		
154:							
Verboort	97	Well suited		Well suited		Moderately suited	
						Low strength	0.50
155:							
Waldo	95	Moderately suited		Moderately suited		Poorly suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Wetness	1.00
						Low strength	0.50
156:							
Waldo, high precipitation	95	Moderately suited		Moderately suited		Poorly suited	
		Stickiness/high plasticity index	0.50	Stickiness/high plasticity index	0.50	Wetness	1.00
						Low strength	0.50
157:							
Wapato	89	Well suited		Well suited		Poorly suited	
						Wetness	1.00
						Low strength	0.50
158:							
Wapato, high precipitation	95	Well suited		Well suited		Poorly suited	
						Wetness	1.00
						Low strength	0.50
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Willakenzie	33	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
161:							
Wellsdale	54	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Willakenzie	33	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Dupee	10	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
162:							
Wellsdale, north slopes	60	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
Willakenzie, north slopes	27	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
Dupee, north slopes	10	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
163:							
Willakenzie	83	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
164:							
Willakenzie	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
165:							
Willakenzie	86	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
166:							
Willakenzie	79	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
167:							
Willakenzie, south slopes	78	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
Wellsdale, south slopes	15	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
168:							
Willakenzie	79	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Wellsdale	15	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
169:							
Willamette----------	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
170:							
Willamette----------	84	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
171:							
Willamette----------	97	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
172:							
Witham--------------	79	Poorly suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Low strength	0.50
				Slope	0.50	Stickiness/high plasticity index	0.50
173:							
Witham--------------	75	Poorly suited		Poorly suited		Moderately suited	
		Stickiness/high plasticity index	0.75	Stickiness/high plasticity index	0.75	Low strength	0.50
				Slope	0.75	Stickiness/high plasticity index	0.50
174:							
Witzel--------------	46	Moderately suited		Unsuited		Well suited	
		Rock fragments	0.50	Rock fragments	1.00		
				Slope	0.50		
Ritner--------------	44	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
175:							
Witzel--------------	46	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Rock fragments	1.00	Slope	0.50
				Slope	0.75		
Ritner--------------	44	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
176:							
Witzel--------------	46	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00		
Ritner--------------	44	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
177:							
Woodburn------------	92	Well suited		Well suited		Moderately suited	
						Low strength	0.50
178:							
Woodburn------------	92	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 10.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
179:							
Woodburn------------	94	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
180:							
Woodburn------------	95	Moderately suited		Unsuited		Moderately suited	
		Slope	0.50	Slope	1.00	Slope	0.50
						Low strength	0.50

Table 11.--Forestland Site Preparation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
1:					
Abiqua	89	Well suited		Well suited	
2:					
Abiqua	84	Well suited		Well suited	
3:					
Abiqua, high precipitation	90	Well suited		Well suited	
4:					
Abiqua, high precipitation	95	Well suited		Well suited	
5:					
Abiqua, rarely flooded	86	Well suited		Well suited	
6:					
Alsea	95	Well suited		Well suited	
7:					
Alsea, rarely flooded	95	Well suited		Well suited	
8:					
Amity	94	Well suited		Well suited	
9:					
Apt	55	Well suited		Well suited	
McDuff	30	Well suited		Well suited	
10:					
Apt	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
McDuff	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
11:					
Aquents	97	Poorly suited		Unsuited	
		Wetness	0.75	Wetness	1.00
12:					
Awbrig	87	Poorly suited		Well suited	
		Stickiness/high plasticity index	0.50		

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
13:					
Bashaw, nonflooded	89	Poorly suited		Unsuited	
		Stickiness/high plasticity index	0.50	Wetness	1.00
14:					
Bashaw, flooded	90	Poorly suited		Unsuited	
		Stickiness/high plasticity index	0.50	Wetness	1.00
15:					
Bashaw, nonflooded	87	Poorly suited		Unsuited	
		Stickiness/high plasticity index	0.50	Wetness	1.00
16:					
Bashaw, nonflooded	87	Poorly suited		Unsuited	
		Stickiness/high plasticity index	0.50	Wetness	1.00
17:					
Bellpine	68	Well suited		Well suited	
Jory, sedimentary bedrock	24	Well suited		Well suited	
18:					
Bellpine	51	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Jory, sedimentary bedrock	42	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
19:					
Bellpine	52	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Jory, sedimentary bedrock	43	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
20:					
Bellpine	55	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Jory, sedimentary bedrock	42	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
21:					
Blachly	50	Well suited		Well suited	
Kilowan	40	Well suited		Well suited	
22:					
Blachly	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
22:					
Kilowan	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
23:					
Bohannon	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Preacher	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
24:					
Bohannon	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Preacher	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
25:					
Briedwell	84	Well suited		Well suited	
26:					
Briedwell	94	Well suited		Well suited	
27:					
Burntwoods	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Oldblue	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
28:					
Camas	87	Well suited		Well suited	
29:					
Camas, rarely flooded	90	Poorly suited		Well suited	
		Rock fragments	0.50		
30:					
Caterl	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Laderly	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Romanose	20	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
				Rock fragments	0.50
31:					
Caterl	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
31:					
Laderly	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Romanose	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
32:					
Caterl	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Murtip	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Giveout	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
33:					
Caterl	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Murtip	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Laderly	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
34:					
Chapman	92	Well suited		Well suited	
35:					
Chapman, high precipitation	95	Well suited		Well suited	
36:					
Chehalem	91	Well suited		Well suited	
37:					
Chehalem	92	Well suited		Well suited	
38:					
Chehalis	90	Well suited		Well suited	
39:					
Chehalis, high precipitation	95	Well suited		Well suited	
40:					
Chehalis	92	Well suited		Well suited	

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
41:					
Chintimini	45	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Blodgett	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
42:					
Chintimini	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Blodgett	30	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
				Rock fragments	0.50
Fiverivers	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
43:					
Chintimini	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50		
Grassmountain	45	Well suited		Well suited	
44:					
Chismore	55	Well suited		Well suited	
Pyburn	30	Well suited		Unsuited	
				Wetness	1.00
45:					
Chismore	60	Well suited		Well suited	
Pyburn	25	Well suited		Unsuited	
				Wetness	1.00
46:					
Cloquato	90	Well suited		Well suited	
47:					
Cloquato, high precipitation	95	Well suited		Well suited	
48:					
Coburg, occasionally flooded	45	Well suited		Well suited	
Coburg, rarely flooded	44	Well suited		Well suited	

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
49:					
Coburg	88	Well suited		Well suited	
50:					
Coburg, rarely flooded	89	Well suited		Well suited	
51:					
Concord	92	Well suited		Well suited	
52:					
Conser	86	Well suited		Well suited	
53:					
Dayton	93	Well suited		Well suited	
54:					
Dayton, clay substratum	92	Well suited		Well suited	
55:					
Digger	50	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
Bohannon	40	Well suited		Well suited	
56:					
Digger	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Remote	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Umpcoos	20	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
				Rock fragments	0.50
57:					
Digger	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Umpcoos	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
Remote	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
58:					
Dixonville	46	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness/high plasticity index	0.50		

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
58:					
Gellatly	43	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
59:					
Dixonville	55	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Stickiness/high plasticity index	0.50		
Gellatly	33	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
60:					
Dixonville	34	Poorly suited		Well suited	
		Stickiness/high plasticity index	0.50		
Gellatly	28	Well suited		Well suited	
Witham	20	Poorly suited		Well suited	
		Stickiness/high plasticity index	0.50		
61:					
Dupee	86	Well suited		Well suited	
62:					
Dupee	87	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
63:					
Elsie	80	Well suited		Well suited	
64:					
Elsie	85	Well suited		Well suited	
65:					
Fiverivers	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Grassmountain	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Chintimini	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
66:					
Fluvents	53	Well suited		Well suited	
Fluvaquents	37	Well suited		Well suited	
67:					
Fluvents, high precipitation	50	Well suited		Well suited	

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
67:					
Fluvaquents, high precipitation------	45	Well suited		Well suited	
68:					
Formader------------	50	Well suited		Well suited	
Hemcross------------	35	Well suited		Well suited	
69:					
Formader------------	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Hemcross------------	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
70:					
Formader------------	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Klistan-------------	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Hemcross------------	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
71:					
Gelderman-----------	47	Well suited		Well suited	
Jory, basalt bedrock	42	Well suited		Well suited	
72:					
Goodin--------------	30	Well suited		Well suited	
Dupee---------------	21	Well suited		Well suited	
Chehulpum-----------	20	Well suited		Well suited	
73:					
Goodin--------------	31	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Chehulpum-----------	21	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Dupee---------------	21	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
74:					
Grassmountain-------	40	Well suited		Well suited	
Fiverivers----------	30	Poorly suited		Well suited	
		Rock fragments	0.50		
Chintimini----------	15	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50		

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
75:					
Harslow-------------	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
Kilchis-------------	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
Rock outcrop--------	15	Not rated		Not rated	
76:					
Harslow-------------	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
Klistan-------------	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Rock outcrop--------	20	Not rated		Not rated	
77:					
Hazelair------------	81	Well suited		Well suited	
78:					
Hazelair------------	81	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
79:					
Hazelair------------	81	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
80:					
Hazelair------------	82	Well suited		Well suited	
81:					
Helmick-------------	86	Well suited		Well suited	
82:					
Helvetia------------	94	Well suited		Well suited	
83:					
Hemcross------------	55	Well suited		Well suited	
Klistan-------------	35	Poorly suited		Well suited	
		Rock fragments	0.50		
84:					
Hemcross------------	45	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Klistan-------------	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
85:					
Holcomb	85	Well suited		Well suited	
86:					
Honeygrove	50	Well suited		Well suited	
Peavine, sedimentary bedrock	40	Well suited		Well suited	
87:					
Honeygrove	45	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Peavine, sedimentary bedrock	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
88:					
Honeygrove, basalt bedrock	50	Well suited		Well suited	
Peavine, basalt bedrock	35	Well suited		Well suited	
89:					
Honeygrove, basalt bedrock	45	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Peavine, basalt bedrock	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
90:					
Honeygrove, basalt bedrock	55	Well suited		Well suited	
Shivigny	30	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
91:					
Jory, basalt bedrock	86	Well suited		Well suited	
92:					
Jory, basalt bedrock	86	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
93:					
Jory, basalt bedrock	84	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
94:					
Jory, sedimentary bedrock	81	Well suited		Well suited	
95:					
Jory, sedimentary bedrock	81	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
96:					
Jory, sedimentary bedrock	86	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
97:					
Jory, sedimentary bedrock	72	Well suited		Well suited	
Dupee	22	Well suited		Well suited	
98:					
Jory, basalt bedrock	57	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Gelderman	20	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
99:					
Jory, basalt bedrock	55	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Nekia	32	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
100:					
Jory, basalt bedrock	55	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Nekia	32	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
101:					
Kirkendall	40	Well suited		Well suited	
Nekoma	30	Well suited		Well suited	
Quosatana	15	Well suited		Unsuited	
				Wetness	1.00
102:					
Klistan	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Harslow	30	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
				Rock fragments	0.50
103:					
Klistan	40	Poorly suited		Well suited	
		Rock fragments	0.50		
Harslow	25	Poorly suited		Poorly suited	
		Rock fragments	0.50	Restrictive layer	0.50
				Rock fragments	0.50
Hemcross	20	Well suited		Well suited	

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
104:					
Laderly	35	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
Murtip	30	Well suited		Well suited	
Giveout	25	Well suited		Well suited	
105:					
Linslaw	91	Well suited		Well suited	
106:					
Linslaw	92	Well suited		Well suited	
107:					
Lurnick	60	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Luckiamute	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
				Restrictive layer	0.50
108:					
Lurnick	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Luckiamute	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
				Restrictive layer	0.50
Maryspeak	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
109:					
MacDunn	44	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Rock fragments	0.50
Price	28	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Ritner	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
110:					
Malabon	89	Well suited		Well suited	
111:					
Malabon, rarely flooded	89	Well suited		Well suited	
112:					
Maryspeak	90	Poorly suited		Well suited	
		Rock fragments	0.50		

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
113:					
McAlpin	82	Well suited		Well suited	
114:					
McAlpin	84	Well suited		Well suited	
115:					
McAlpin, high precipitation	90	Well suited		Well suited	
116:					
McAlpin, high precipitation	90	Well suited		Well suited	
117:					
McAlpin, rarely flooded	81	Well suited		Well suited	
118:					
McBee	92	Well suited		Well suited	
119:					
McBee, nonflooded	85	Well suited		Well suited	
120:					
Meda	40	Well suited		Well suited	
Treharne	25	Well suited		Well suited	
Wasson	15	Well suited		Unsuited	
				Wetness	1.00
121:					
Mulkey	85	Well suited		Poorly suited	
				Restrictive layer	0.50
122:					
Mulkey	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Restrictive layer	0.50
123:					
Murtip	45	Well suited		Well suited	
Giveout	25	Well suited		Well suited	
Laderly	20	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
124:					
Nekoma	50	Well suited		Well suited	
Fluvaquents	30	Well suited		Unsuited	
				Wetness	1.00
125:					
Newberg	92	Well suited		Well suited	

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
126:					
Newberg, high precipitation	95	Well suited		Well suited	
127:					
Newberg	92	Well suited		Well suited	
128:					
Oldblue	55	Well suited		Well suited	
Burntwoods	35	Poorly suited		Well suited	
		Rock fragments	0.50		
129:					
Panther	81	Well suited		Well suited	
130:					
Pengra	83	Well suited		Well suited	
131:					
Philomath	76	Poorly suited		Well suited	
		Stickiness/high plasticity index	0.50		
132:					
Pilchuck	79	Well suited		Well suited	
133:					
Pits	100	Not rated		Not rated	
134:					
Preacher	40	Well suited		Well suited	
Blachly	30	Well suited		Well suited	
Bohannon	20	Well suited		Well suited	
135:					
Preacher	50	Well suited		Well suited	
Bohannon	30	Well suited		Well suited	
136:					
Preacher	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Bohannon	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Slickrock	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
137:					
Price	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
MacDunn	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Rock fragments	0.50

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
137:					
Ritner	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
138:					
Riverwash	100	Not rated		Not rated	
139:					
Salem	91	Well suited		Well suited	
140:					
Santiam	91	Well suited		Well suited	
141:					
Santiam	93	Well suited		Well suited	
142:					
Sevencedars	55	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Newanna	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	0.50
143:					
Sevencedars	35	Well suited		Well suited	
Newanna	30	Poorly suited		Poorly suited	
		Rock fragments	0.50	Restrictive layer	0.50
Woodspoint	25	Well suited		Well suited	
144:					
Sevencedars	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Newanna	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	0.50
Woodspoint	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
145:					
Shivigny	45	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Honeygrove, basalt bedrock	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
146:					
Slickrock	90	Well suited		Well suited	
147:					
Steiwer	49	Well suited		Well suited	
Chehulpum	41	Well suited		Well suited	

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
148:					
Steiwer-------------	50	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Chehulpum-----------	40	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
149:					
Steiwer-------------	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Chehulpum-----------	39	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
150:					
Treharne------------	35	Well suited		Well suited	
Eilertsen-----------	30	Well suited		Well suited	
Zyzzug--------------	20	Well suited		Well suited	
151:					
Valsetz-------------	55	Poorly suited		Poorly suited	
		Rock fragments	0.50	Restrictive layer	0.50
				Rock fragments	0.50
Yellowstone---------	30	Poorly suited		Unsuited	
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
152:					
Valsetz-------------	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	0.50
				Rock fragments	0.50
Yellowstone---------	20	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
				Rock fragments	0.50
153:					
Valsetz-------------	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	0.50
				Rock fragments	0.50
Yellowstone---------	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
				Rock fragments	0.50
154:					
Verboort------------	97	Well suited		Well suited	
155:					
Waldo---------------	95	Well suited		Unsuited	
				Wetness	1.00

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
156:					
Waldo, high precipitation------	95	Well suited		Unsuited	
				Wetness	1.00
157:					
Wapato--------------	89	Well suited		Unsuited	
				Wetness	1.00
158:					
Wapato, high precipitation------	95	Well suited		Unsuited	
				Wetness	1.00
159:					
Water---------------	100	Not rated		Not rated	
160:					
Wellsdale-----------	60	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Willakenzie---------	33	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
161:					
Wellsdale-----------	54	Well suited		Well suited	
Willakenzie---------	33	Well suited		Well suited	
Dupee---------------	10	Well suited		Well suited	
162:					
Wellsdale, north slopes-------------	60	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Willakenzie, north slopes-------------	27	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Dupee, north slopes	10	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
163:					
Willakenzie---------	83	Well suited		Well suited	
164:					
Willakenzie---------	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
165:					
Willakenzie---------	86	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
166:					
Willakenzie---------	79	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
167:					
Willakenzie, south slopes	78	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Wellsdale, south slopes	15	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
168:					
Willakenzie	79	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Wellsdale	15	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
169:					
Willamette	95	Well suited		Well suited	
170:					
Willamette	84	Well suited		Well suited	
171:					
Willamette	97	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
172:					
Witham	79	Poorly suited		Well suited	
		Stickiness/high plasticity index	0.50		
173:					
Witham	75	Poorly suited		Poorly suited	
		Stickiness/high plasticity index	0.50	Slope	0.50
		Slope	0.50		
174:					
Witzel	46	Poorly suited		Unsuited	
		Rock fragments	0.50	Restrictive layer	1.00
Ritner	44	Well suited		Well suited	
175:					
Witzel	46	Poorly suited		Unsuited	
		Rock fragments	0.50	Restrictive layer	1.00
		Slope	0.50	Slope	0.50
Ritner	44	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
176:					
Witzel	46	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
Ritner	44	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00

Table 11.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
177:					
Woodburn	92	Well suited		Well suited	
178:					
Woodburn	92	Well suited		Well suited	
179:					
Woodburn	94	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
180:					
Woodburn	95	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Potential for damage to soil by fire: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
1:					
Abiqua	89	Low		Low	
		Texture/rock fragments	0.10		
2:					
Abiqua	84	Low		Low	
		Texture/rock fragments	0.10		
3:					
Abiqua, high precipitation	90	Low		Low	
		Texture/rock fragments	0.10		
4:					
Abiqua, high precipitation	95	Low		Low	
		Texture/rock fragments	0.10		
5:					
Abiqua, rarely flooded	86	Low		Low	
		Texture/rock fragments	0.10		
6:					
Alsea	95	Low		Low	
		Texture/rock fragments	0.10		
7:					
Alsea, rarely flooded	95	Low		Low	
		Texture/rock fragments	0.10		
8:					
Amity	94	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
9:					
Apt	55	Low		Low	
McDuff	30	Low		Low	
10:					
Apt	50	Low		Low	

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
10:					
McDuff	30	Low		Low	
11:					
Aquents	97	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
12:					
Awbrig	87	Low		High	
				Wetness	1.00
13:					
Bashaw, nonflooded	89	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
14:					
Bashaw, flooded	90	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
15:					
Bashaw, nonflooded	87	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
16:					
Bashaw, nonflooded	87	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
17:					
Bellpine	68	Low		Low	
		Texture/rock fragments	0.10		
Jory, sedimentary bedrock	24	Low		Low	
		Texture/rock fragments	0.10		
18:					
Bellpine	51	Low		Low	
		Texture/rock fragments	0.10		
Jory, sedimentary bedrock	42	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
19:					
Bellpine	52	Low		Low	
		Texture/rock fragments	0.10		
Jory, sedimentary bedrock	43	Low		Low	
		Texture/rock fragments	0.10		
20:					
Bellpine	55	Low		Low	
		Texture/slope/ rock fragments	0.10		
Jory, sedimentary bedrock	42	Low		Low	
		Texture/slope/ rock fragments	0.10		
21:					
Blachly	50	Low		Low	
		Texture/rock fragments	0.10		
Kilowan	40	Low		Low	
22:					
Blachly	50	Low		Low	
		Texture/slope/ rock fragments	0.10		
Kilowan	40	Low		Low	
23:					
Bohannon	50	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Preacher	40	Low		Low	
		Texture/rock fragments	0.10		
24:					
Bohannon	50	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Preacher	40	Low		Low	
		Texture/rock fragments	0.10		
25:					
Briedwell	84	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
26:					
Briedwell	94	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
27:					
Burntwoods	50	Moderate		Low	
		Texture/rock fragments	0.50		
Oldblue	40	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
28:					
Camas	87	Low		High	
				Available water	1.00
29:					
Camas, rarely flooded	90	Low		High	
		Texture/rock fragments	0.10	Available water	1.00
30:					
Caterl	40	Low		Moderate	
				Available water	0.50
Laderly	30	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Romanose	20	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Available water	0.50
31:					
Caterl	40	Low		Low	
		Texture/slope/ rock fragments	0.10		
Laderly	30	Low		Low	
		Texture/rock fragments	0.10		
Romanose	25	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
32:					
Caterl	35	Low		Low	
		Texture/slope/ rock fragments	0.10		
Murtip	30	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
32:					
Giveout	25	Low		Low	
		Texture/rock fragments	0.10		
33:					
Caterl	40	Low		Moderate	
				Available water	0.50
Murtip	30	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Laderly	20	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
34:					
Chapman	92	Low		Low	
		Texture/rock fragments	0.10		
35:					
Chapman, high precipitation	95	Low		Low	
		Texture/rock fragments	0.10		
36:					
Chehalem	91	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
37:					
Chehalem	92	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
38:					
Chehalis	90	Low		Low	
		Texture/rock fragments	0.10		
39:					
Chehalis, high precipitation	95	Low		Low	
		Texture/rock fragments	0.10		
40:					
Chehalis	92	Low		Low	
		Texture/rock fragments	0.10		
41:					
Chintimini	45	High		Moderate	
		Texture/slope/ rock fragments	1.00	Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
41:					
Blodgett	40	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Available water	0.50
42:					
Chintimini	40	High		Moderate	
		Texture/slope/ rock fragments	1.00	Available water	0.50
Blodgett	30	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Available water	0.50
Fiverivers	20	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
43:					
Chintimini	45	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Grassmountain	45	Low		Low	
		Texture/rock fragments	0.10		
44:					
Chismore	55	Low		Low	
		Texture/rock fragments	0.10		
Pyburn	30	Low		High	
				Wetness	1.00
45:					
Chismore	60	Low		Low	
		Texture/rock fragments	0.10		
Pyburn	25	Low		High	
				Wetness	1.00
46:					
Cloquato	90	Low		Low	
		Texture/rock fragments	0.10		
47:					
Cloquato, high precipitation	95	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
48:					
Coburg, occasionally flooded	45	Low		Low	
		Texture/rock fragments	0.10		
Coburg, rarely flooded	44	Low		Low	
		Texture/rock fragments	0.10		
49:					
Coburg	88	Low		Low	
		Texture/rock fragments	0.10		
50:					
Coburg, rarely flooded	89	Low		Low	
		Texture/rock fragments	0.10		
51:					
Concord	92	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
52:					
Conser	86	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
53:					
Dayton	93	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
54:					
Dayton, clay substratum	92	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
55:					
Digger	50	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
Bohannon	40	Low		Low	
		Texture/rock fragments	0.10		
56:					
Digger	40	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
56:					
Remote	35	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
Umpcoos	20	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
57:					
Digger	40	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
Umpcoos	35	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
Remote	20	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
58:					
Dixonville	46	Moderate		Moderate	
		Texture/surface depth/rock rock fragments	0.50	Available water	0.50
Gellatly	43	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
59:					
Dixonville	55	High		Moderate	
		Texture/slope/ surface depth	1.00	Available water	0.50
Gellatly	33	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Available water	0.50
60:					
Dixonville	34	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
Gellatly	28	Low		Low	
Witham	20	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
61:					
Dupee	86	Low		High	
				Wetness	1.00
62:					
Dupee	87	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
63:					
Elsie	80	Low		Low	
		Texture/rock fragments	0.10		
64:					
Elsie	85	Low		Low	
		Texture/rock fragments	0.10		
65:					
Fiverivers	35	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Grassmountain	30	Low		Low	
		Texture/slope/ rock fragments	0.10		
Chintimini	25	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
66:					
Fluvents	53	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
				Available water	0.50
Fluvaquents	37	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
67:					
Fluvents, high precipitation	50	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Fluvaquents, high precipitation	45	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
68:					
Formader	50	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
68:					
Hemcross------------	35	Low		Low	
		Texture/surface depth/rock fragments	0.10		
69:					
Formader------------	50	Low		Low	
		Texture/rock fragments	0.10		
Hemcross------------	30	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
70:					
Formader------------	35	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Klistan-------------	30	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Hemcross------------	20	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	0.50
71:					
Gelderman-----------	47	Low		Low	
Jory, basalt bedrock	42	Low		Low	
72:					
Goodin--------------	30	Low		Low	
Dupee---------------	21	Low		High	
				Wetness	1.00
Chehulpum-----------	20	Low		Moderate	
				Available water	0.50
73:					
Goodin--------------	31	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Available water	0.50
Chehulpum-----------	21	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Available water	1.00
Dupee---------------	21	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
74:					
Grassmountain	40	Low		Low	
		Texture/rock fragments	0.10		
Fiverivers	30	High		Low	
		Texture/surface depth/rock fragments	1.00		
Chintimini	15	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
75:					
Harslow	40	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Available water	0.50
Kilchis	30	Low		Moderate	
				Available water	0.50
Rock outcrop	15	Not rated		Not rated	
76:					
Harslow	35	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Klistan	30	Low		Low	
		Texture/rock fragments	0.10		
Rock outcrop	20	Not rated		Not rated	
77:					
Hazelair	81	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
78:					
Hazelair	81	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
79:					
Hazelair	81	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
80:					
Hazelair	82	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
81:					
Helmick	86	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
82:					
Helvetia	94	Low		Low	
		Texture/rock fragments	0.10		
83:					
Hemcross	55	Low		Low	
		Texture/surface depth/rock fragments	0.10		
Klistan	35	Low		Low	
		Texture/rock fragments	0.10		
84:					
Hemcross	45	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
Klistan	40	Low		Low	
		Texture/rock fragments	0.10		
85:					
Holcomb	85	Low		Low	
		Texture/rock fragments	0.10		
86:					
Honeygrove	50	Low		Low	
Peavine, sedimentary bedrock	40	Low		Low	
87:					
Honeygrove	45	Low		Low	
Peavine, sedimentary bedrock	35	Low		Low	
88:					
Honeygrove, basalt bedrock	50	Low		Low	
Peavine, basalt bedrock	35	Low		Low	
89:					
Honeygrove, basalt bedrock	45	Low		Low	

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Potential for damage to soil by fire: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
89:					
Peavine, basalt bedrock	40	Low		Low	
90:					
Honeygrove, basalt bedrock	55	Low		Low	
Shivigny	30	Low		Low	
91:					
Jory, basalt bedrock	86	Low		Low	
92:					
Jory, basalt bedrock	86	Low		Low	
		Texture/rock fragments	0.10		
93:					
Jory, basalt bedrock	84	Low		Low	
		Texture/rock fragments	0.10		
94:					
Jory, sedimentary bedrock	81	Low		Low	
		Texture/rock fragments	0.10		
95:					
Jory, sedimentary bedrock	81	Low		Low	
		Texture/rock fragments	0.10		
96:					
Jory, sedimentary bedrock	86	Low		Low	
		Texture/rock fragments	0.10		
97:					
Jory, sedimentary bedrock	72	Low		Low	
		Texture/rock fragments	0.10		
Dupee	22	Low		High	
				Wetness	1.00
98:					
Jory, basalt bedrock	57	Low		Low	
		Texture/rock fragments	0.10		
Gelderman	20	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
99:					
Jory, basalt bedrock	55	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Nekia	32	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
100:					
Jory, basalt bedrock	55	Low		Low	
		Texture/rock fragments	0.10		
Nekia	32	Low		Low	
		Texture/rock fragments	0.10		
101:					
Kirkendall	40	Low		Low	
		Texture/rock fragments	0.10		
Nekoma	30	Low		Low	
		Texture/rock fragments	0.10		
Quosatana	15	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
102:					
Klistan	50	Low		Low	
		Texture/rock fragments	0.10		
Harslow	30	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
103:					
Klistan	40	Moderate		Low	
		Texture/rock fragments	0.50		
Harslow	25	Moderate		Low	
		Texture/rock fragments	0.50		
Hemcross	20	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
104:					
Laderly	35	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
104:					
Murtip	30	Low		Low	
		Texture/rock fragments	0.10		
Giveout	25	Low		Low	
		Texture/rock fragments	0.10		
105:					
Linslaw	91	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
106:					
Linslaw	92	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
107:					
Lurnick	60	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Luckiamute	30	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
108:					
Lurnick	40	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Luckiamute	30	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Maryspeak	20	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
109:					
MacDunn	44	Low		Low	
Price	28	Low		Low	
Ritner	20	Low		Low	
110:					
Malabon	89	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
111:					
Malabon, rarely flooded	89	Low		Low	
		Texture/rock fragments	0.10		
112:					
Maryspeak	90	Low		Low	
		Texture/surface depth/rock fragments	0.10		
113:					
McAlpin	82	Low		Low	
		Texture/rock fragments	0.10		
114:					
McAlpin	84	Low		Low	
		Texture/rock fragments	0.10		
115:					
McAlpin, high precipitation	90	Low		Low	
		Texture/rock fragments	0.10		
116:					
McAlpin, high precipitation	90	Low		Low	
		Texture/rock fragments	0.10		
117:					
McAlpin, rarely flooded	81	Low		Low	
		Texture/rock fragments	0.10		
118:					
McBee	92	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
119:					
McBee, nonflooded	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
120:					
Meda	40	Low		Low	
		Texture/rock fragments	0.10		
Treharne	25	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
120:					
Wasson	15	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
121:					
Mulkey	85	Low		Low	
		Texture/rock fragments	0.10		
122:					
Mulkey	85	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
123:					
Murtip	45	Low		Low	
		Texture/rock fragments	0.10		
Giveout	25	Low		Low	
		Texture/rock fragments	0.10		
Laderly	20	Low		Low	
		Texture/rock fragments	0.10		
124:					
Nekoma	50	Low		Low	
		Texture/rock fragments	0.10		
Fluvaquents	30	Low		Moderate	
				Wetness	0.50
125:					
Newberg	92	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
126:					
Newberg, high precipitation	95	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
127:					
Newberg	92	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
128:					
Oldblue	55	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
128:					
Burntwoods	35	Moderate		Low	
		Texture/rock fragments	0.50		
129:					
Panther	81	Low		High	
				Wetness	1.00
130:					
Pengra	83	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
131:					
Philomath	76	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Available water	0.50
132:					
Pilchuck	79	Low		High	
		Texture/rock fragments	0.10	Available water	1.00
133:					
Pits	100	Not rated		Not rated	
134:					
Preacher	40	Low		Low	
		Texture/rock fragments	0.10		
Blachly	30	Low		Low	
		Texture/rock fragments	0.10		
Bohannon	20	Low		Low	
		Texture/rock fragments	0.10		
135:					
Preacher	50	Low		Low	
		Texture/rock fragments	0.10		
Bohannon	30	Low		Low	
		Texture/rock fragments	0.10		
136:					
Preacher	35	Low		Low	
		Texture/rock fragments	0.10		
Bohannon	30	Moderate		Low	
		Texture/slope/ rock fragments	0.50		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
136:					
Slickrock	20	Low		Low	
		Texture/rock fragments	0.10		
137:					
Price	40	Low		Low	
MacDunn	30	Low		Low	
Ritner	20	Low		Low	
138:					
Riverwash	100	Not rated		Not rated	
139:					
Salem	91	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
140:					
Santiam	91	Low		Low	
		Texture/rock fragments	0.10		
141:					
Santiam	93	Low		Low	
		Texture/rock fragments	0.10		
142:					
Sevencedars	55	Low		Low	
		Texture/slope/ rock fragments	0.10		
Newanna	30	Low		Low	
		Texture/rock fragments	0.10		
143:					
Sevencedars	35	Low		Low	
		Texture/rock fragments	0.10		
Newanna	30	Low		Low	
		Texture/rock fragments	0.10		
Woodspoint	25	Low		Low	
		Texture/surface depth/rock fragments	0.10		
144:					
Sevencedars	50	Low		Low	
		Texture/slope/ rock fragments	0.10		

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
144:					
Newanna	20	Low		Low	
		Texture/rock fragments	0.10		
Woodspoint	20	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
145:					
Shivigny	45	Low		Low	
Honeygrove, basalt bedrock	40	Low		Low	
146:					
Slickrock	90	Low		Low	
		Texture/rock fragments	0.10		
147:					
Steiwer	49	Low		Low	
		Texture/rock fragments	0.10		
Chehulpum	41	Low		Moderate	
				Available water	0.50
148:					
Steiwer	50	Low		Low	
		Texture/rock fragments	0.10		
Chehulpum	40	Low		Low	
		Texture/surface depth/rock fragments	0.10		
149:					
Steiwer	50	Low		Moderate	
				Available water	0.50
Chehulpum	39	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	1.00
150:					
Treharne	35	Low		Low	
		Texture/rock fragments	0.10		
Eilertsen	30	Low		Low	
		Texture/rock fragments	0.10		
Zyzzug	20	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
151:					
Valsetz	55	Moderate		Low	
		Texture/rock fragments	0.50		
Yellowstone	30	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
152:					
Valsetz	65	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Available water	0.50
Yellowstone	20	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	0.50
153:					
Valsetz	65	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Yellowstone	20	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
154:					
Verboort	97	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
155:					
Waldo	95	Low		High	
				Wetness	1.00
156:					
Waldo, high precipitation	95	Low		High	
				Wetness	1.00
157:					
Wapato	89	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
158:					
Wapato, high precipitation	95	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
159:					
Water	100	Not rated		Not rated	

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
160:					
Wellsdale-----------	60	Low		Low	
		Texture/surface depth/rock fragments	0.10		
Willakenzie---------	33	Low		Low	
		Texture/rock fragments	0.10		
161:					
Wellsdale-----------	54	Low		Moderate	
				Available water	0.50
Willakenzie---------	33	Low		Low	
		Texture/rock fragments	0.10		
Dupee---------------	10	Low		High	
				Wetness	1.00
162:					
Wellsdale, north slopes-------------	60	Low		Low	
		Texture/surface depth/rock fragments	0.10		
Willakenzie, north slopes-------------	27	Low		Low	
		Texture/rock fragments	0.10		
Dupee, north slopes	10	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
163:					
Willakenzie---------	83	Low		Low	
		Texture/rock fragments	0.10		
164:					
Willakenzie---------	85	Low		Low	
		Texture/rock fragments	0.10		
165:					
Willakenzie---------	86	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
166:					
Willakenzie---------	79	Low		Moderate	
				Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
167:					
Willakenzie, south slopes	78	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Wellsdale, south slopes	15	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Available water	1.00
168:					
Willakenzie	79	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Wellsdale	15	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Available water	1.00
169:					
Willamette	95	Low		Low	
		Texture/rock fragments	0.10		
170:					
Willamette	84	Low		Low	
		Texture/rock fragments	0.10		
171:					
Willamette	97	Low		Low	
		Texture/rock fragments	0.10		
172:					
Witham	79	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Available water	0.50
173:					
Witham	75	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
174:					
Witzel	46	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Available water	1.00
Ritner	44	Low		Moderate	
				Available water	0.50

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
175:					
Witzel--------------	46	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Available water	1.00
Ritner--------------	44	Low		High	
				Available water	1.00
176:					
Witzel--------------	46	High		High	
		Texture/slope/ surface depth/ rock fragments	1.00	Available water	1.00
Ritner--------------	44	Low		High	
				Available water	1.00
177:					
Woodburn------------	92	Low		Low	
		Texture/rock fragments	0.10		
178:					
Woodburn------------	92	Low		Low	
		Texture/rock fragments	0.10		
179:					
Woodburn------------	94	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
180:					
Woodburn------------	95	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50

Table 13.--Camp Areas, Picnic Areas, and Playgrounds

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
1:							
Abiqua	89	Not limited		Not limited		Not limited	
2:							
Abiqua	84	Not limited		Not limited		Somewhat limited	
						Slope	0.50
3:							
Abiqua, high precipitation	90	Not limited		Not limited		Not limited	
4:							
Abiqua, high precipitation	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
5:							
Abiqua, rarely flooded	86	Very limited		Not limited		Not limited	
		Flooding	1.00				
6:							
Alsea	95	Not limited		Not limited		Somewhat limited	
						Slope	0.12
7:							
Alsea, rarely flooded	95	Very limited		Not limited		Not limited	
		Flooding	1.00				
8:							
Amity	94	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.88	Depth to saturated zone	1.00
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
9:							
Apt	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
McDuff	30	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.81	Slow water movement	0.81	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	0.81
						Depth to bedrock	0.03

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:							
Apt	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
McDuff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.81	Slow water movement	0.81	Slow water movement	0.81
						Depth to bedrock	0.03
11:							
Aquents	97	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
12:							
Awbrig	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00				
13:							
Bashaw, nonflooded	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Too clayey	0.50	Slope	1.00
		Slow water movement	0.45	Slow water movement	0.45	Too clayey	0.50
						Slow water movement	0.45
14:							
Bashaw, flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Flooding	1.00
		Ponding	1.00	Too clayey	0.50	Ponding	1.00
		Too clayey	0.50	Slow water movement	0.45	Too clayey	0.50
		Slow water movement	0.45	Flooding	0.40	Slow water movement	0.45
15:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Slow water movement	0.45	Slow water movement	0.45	Slow water movement	0.45

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16:							
Bashaw, nonflooded--	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Slow water movement	0.45	Slow water movement	0.45	Slow water movement	0.45
17:							
Bellpine------------	68	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock-----------	24	Not limited		Not limited		Very limited	
						Slope	1.00
18:							
Bellpine------------	51	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock-----------	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
19:							
Bellpine------------	52	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock-----------	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
20:							
Bellpine------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock-----------	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
21:							
Blachly-------------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Kilowan-------------	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Depth to bedrock	0.35
						Slow water movement	0.15

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
22:							
Blachly	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Kilowan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Depth to bedrock	0.35
						Slow water movement	0.15
23:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
24:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
25:							
Briedwell	84	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.68	Gravel content	0.68	Gravel content	1.00
						Slope	0.12
26:							
Briedwell	94	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Gravel content	0.68	Gravel content	0.68	Gravel content	1.00
27:							
Burntwoods	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
28:							
Camas	87	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Gravel content	0.05	Gravel content	1.00
		Gravel content	0.05			Flooding	0.60
29:							
Camas, rarely flooded	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Gravel content	0.92	Gravel content	1.00
		Gravel content	0.92				

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
Romanose	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
31:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
Romanose	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
32:							
Caterl	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Giveout	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
33:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
34:							
Chapman	92	Very limited		Not limited		Not limited	
		Flooding	1.00				
35:							
Chapman, high precipitation	95	Very limited		Not limited		Not limited	
		Flooding	1.00				

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
36:							
Chehalem-----------	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
37:							
Chehalem-----------	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slope	1.00
						Slow water movement	0.96
38:							
Chehalis-----------	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
39:							
Chehalis, high precipitation------	95	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
40:							
Chehalis-----------	92	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
41:							
Chintimini----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Blodgett-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
42:							
Chintimini----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Blodgett-----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Fiverivers----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
43:							
Chintimini----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Grassmountain-------	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
44:							
Chismore	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.67	Slow water movement	0.60	Depth to saturated zone	0.67
		Slow water movement	0.60	Depth to saturated zone	0.35	Slow water movement	0.60
Pyburn	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
45:							
Chismore	60	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.67	Slow water movement	0.60	Slope	1.00
		Slow water movement	0.60	Depth to saturated zone	0.35	Depth to saturated zone	0.67
		Slope	0.01	Slope	0.01	Slow water movement	0.60
Pyburn	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
						Slope	0.88
46:							
Cloquato	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
47:							
Cloquato, high precipitation	95	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
48:							
Coburg, occasionally flooded	45	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Flooding	0.60
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
Coburg, rarely flooded	44	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
49:							
Coburg	88	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.03	Depth to saturated zone	0.02	Depth to saturated zone	0.03

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
50:							
Coburg, rarely flooded	89	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
51:							
Concord	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
52:							
Conser	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.96	Slow water movement	0.96
		Slow water movement	0.96				
53:							
Dayton	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
54:							
Dayton, clay substratum	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
55:							
Digger	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.01
Bohannon	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.16
56:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
Remote	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
56:							
Umpcoos	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
57:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
Umpcoos	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Remote	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
58:							
Dixonville	46	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
						Depth to bedrock	0.16
Gellatly	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
59:							
Dixonville	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
						Depth to bedrock	0.16
Gellatly	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
60:							
Dixonville	34	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.41	Slow water movement	0.41	Slope	1.00
						Slow water movement	0.41
						Depth to bedrock	0.16
Gellatly	28	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.41	Slow water movement	0.41	Slope	1.00
						Slow water movement	0.41
Witham	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slope	1.00
						Slow water movement	0.45

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61:							
Dupee	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	1.00
62:							
Dupee	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
63:							
Elsie	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
64:							
Elsie	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
65:							
Fiverivers	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
Grassmountain	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Chintimini	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
66:							
Fluvents	53	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Fluvaquents	37	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
67:							
Fluvents, high precipitation	50	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Fluvaquents, high precipitation	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
68:							
Formader	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.71
Hemcross	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
69:							
Formader	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.71
Hemcross	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
70:							
Formader	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.71
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Hemcross	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
71:							
Gelderman	47	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.46
Jory, basalt bedrock	42	Not limited		Not limited		Very limited	
						Slope	1.00
72:							
Goodin	30	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.54
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	1.00
Chehulpum	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
73:							
Goodin	31	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.54
Chehulpum	21	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
74:							
Grassmountain	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
74:							
Fiverivers	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.06
Chintimini	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
75:							
Harslow	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Kilchis	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
76:							
Harslow	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slope	1.00
						Depth to bedrock	0.46
						Slow water movement	0.45
78:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.45	Slow water movement	0.45	Depth to bedrock	0.46
						Slow water movement	0.45
79:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	0.45	Slow water movement	0.45	Depth to bedrock	0.46
						Slow water movement	0.45

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
80:							
Hazelair	82	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.96	Slope	0.96	Slope	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slow water movement	0.45
						Depth to bedrock	0.06
81:							
Helmick	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slope	1.00
						Slow water movement	0.45
82:							
Helvetia	94	Not limited		Not limited		Somewhat limited	
						Slope	0.88
83:							
Hemcross	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Klistan	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
84:							
Hemcross	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Klistan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
85:							
Holcomb	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
86:							
Honeygrove	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Peavine, sedimentary bedrock	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
						Depth to bedrock	0.06

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
87:							
Honeygrove----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Peavine, sedimentary bedrock------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
						Depth to bedrock	0.06
88:							
Honeygrove, basalt bedrock------------	50	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.81	Slow water movement	0.81	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	0.81
Peavine, basalt bedrock------------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
						Depth to bedrock	0.03
89:							
Honeygrove, basalt bedrock------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.81	Slow water movement	0.81	Slow water movement	0.81
Peavine, basalt bedrock------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
						Depth to bedrock	0.03
90:							
Honeygrove, basalt bedrock------------	55	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.81	Slow water movement	0.81	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	0.81
Shivigny------------	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
91:							
Jory, basalt bedrock	86	Not limited		Not limited		Very limited	
						Slope	1.00
92:							
Jory, basalt bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
93:							
Jory, basalt bedrock	84	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
94:							
Jory, sedimentary bedrock	81	Not limited		Not limited		Very limited	
						Slope	1.00
95:							
Jory, sedimentary bedrock	81	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
96:							
Jory, sedimentary bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
97:							
Jory, sedimentary bedrock	72	Not limited		Not limited		Very limited	
						Slope	1.00
Dupee	22	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	1.00
98:							
Jory, basalt bedrock	57	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Gelderman	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
99:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
100:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
101:							
Kirkendall	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Slow water movement	0.15	Flooding	0.60
		Slow water movement	0.15			Slow water movement	0.15

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Nekoma	30	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Quosatana	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.60	Flooding	1.00
		Slow water movement	0.60	Flooding	0.40	Slow water movement	0.60
102:							
Klistan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Harslow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
103:							
Klistan	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Harslow	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.16
Hemcross	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
104:							
Laderly	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.03
Murtip	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Giveout	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.06
105:							
Linslaw	91	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.88	Depth to saturated zone	1.00
		Flooding	1.00				
106:							
Linslaw	92	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.88	Depth to saturated zone	1.00
		Flooding	1.00			Slope	0.88
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107:							
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
108:							
Lurnick	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Maryspeak	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
109:							
MacDunn	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Price	28	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
110:							
Malabon	89	Not limited		Not limited		Not limited	
111:							
Malabon, rarely flooded	89	Very limited		Not limited		Not limited	
		Flooding	1.00				
112:							
Maryspeak	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
113:							
McAlpin	82	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	0.28	Depth to saturated zone	0.56
114:							
McAlpin	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	0.28	Depth to saturated zone	0.56
						Slope	0.50
115:							
McAlpin, high precipitation	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	0.28	Depth to saturated zone	0.56

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
116:							
McAlpin, high precipitation	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	0.28	Depth to saturated zone	0.56
						Slope	0.50
117:							
McAlpin, rarely flooded	81	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.35	Depth to saturated zone	0.67
		Depth to saturated zone	0.67				
118:							
McBee	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
119:							
McBee, nonflooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
120:							
Meda	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Treharne	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
						Slope	0.12
Wasson	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
121:							
Mulkey	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.16
122:							
Mulkey	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.16
123:							
Murtip	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
123:							
Giveout-------------	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.06
Laderly-------------	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.03
124:							
Nekoma--------------	50	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Fluvaquents---------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
125:							
Newberg-------------	92	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
126:							
Newberg, high precipitation------	95	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
127:							
Newberg-------------	92	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
128:							
Oldblue-------------	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Burntwoods----------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
129:							
Panther-------------	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	1.00
130:							
Pengra--------------	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	1.00
131:							
Philomath-----------	76	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slope	1.00
						Slow water movement	0.41

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
132:							
Pilchuck	79	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Blachly	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Bohannon	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.16
135:							
Preacher	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Bohannon	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.16
136:							
Preacher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Bohannon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Slickrock	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
137:							
Price	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
MacDunn	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Not limited		Not limited		Somewhat limited	
						Gravel content	0.99

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
140:							
Santiam	91	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.67	Slow water movement	0.41	Slope	0.88
		Slow water movement	0.41	Depth to saturated zone	0.35	Depth to saturated zone	0.67
						Slow water movement	0.41
141:							
Santiam	93	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Depth to saturated zone	0.67	Slow water movement	0.41	Depth to saturated zone	0.67
		Slow water movement	0.41	Depth to saturated zone	0.35	Slow water movement	0.41
142:							
Sevencedars	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.20
143:							
Sevencedars	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Newanna	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.20
Woodspoint	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
144:							
Sevencedars	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Newanna	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.20
Woodspoint	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
145:							
Shivigny	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
Honeygrove, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.81	Slow water movement	0.81	Slow water movement	0.81

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
146:							
Slickrock	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
147:							
Steiwer	49	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.80
Chehulpum	41	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
148:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Chehulpum	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
149:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Chehulpum	39	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
150:							
Treharne	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
Eilertsen	30	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Zyzzug	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.15	Slow water movement	0.15
		Slow water movement	0.15				
151:							
Valsetz	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.10
Yellowstone	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
152:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.10
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
153:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.10
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
154:							
Verboort	97	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.45	Flooding	1.00
		Slow water movement	0.45	Flooding	0.40	Slow water movement	0.45
155:							
Waldo	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.96	Slow water movement	0.96
		Slow water movement	0.96				
156:							
Waldo, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.96	Slow water movement	0.96
		Slow water movement	0.96			Flooding	0.60
157:							
Wapato	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.19	Flooding	0.60
		Slow water movement	0.19			Slow water movement	0.19

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
158:							
Wapato, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.19	Flooding	0.60
		Slow water movement	0.19			Slow water movement	0.19
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Willakenzie	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
161:							
Wellsdale	54	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	1.00
						Depth to saturated zone	0.39
Willakenzie	33	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.29
Dupee	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.88
162:							
Wellsdale, north slopes	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Willakenzie, north slopes	27	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
Dupee, north slopes	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
163:							
Willakenzie	83	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.29

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
164:							
Willakenzie	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
165:							
Willakenzie	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
166:							
Willakenzie	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
167:							
Willakenzie, south slopes	78	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
Wellsdale, south slopes	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
168:							
Willakenzie	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
Wellsdale	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
169:							
Willamette	95	Not limited		Not limited		Not limited	
170:							
Willamette	84	Not limited		Not limited		Very limited	
						Slope	1.00
171:							
Willamette	97	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
172:							
Witham	79	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slope	1.00
						Slow water movement	0.45

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
173:							
Witham	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slow water movement	0.45
174:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.50	Large stones content	0.50	Slope	1.00
						Gravel content	0.94
						Large stones content	0.50
Ritner	44	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.01
175:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.50	Large stones content	0.50	Gravel content	0.94
						Large stones content	0.50
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.50	Large stones content	0.50	Gravel content	0.94
						Large stones content	0.50
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
177:							
Woodburn	92	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.24	Depth to saturated zone	0.12	Depth to saturated zone	0.24
178:							
Woodburn	92	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.24	Depth to saturated zone	0.12	Slope	1.00
						Depth to saturated zone	0.24

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
179:							
Woodburn------------	94	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.24	Depth to saturated zone	0.12	Depth to saturated zone	0.24
180:							
Woodburn------------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.24	Depth to saturated zone	0.12	Depth to saturated zone	0.24

Table 14.--Paths, Trails, and Golf Fairways

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Abiqua	89	Not limited		Not limited		Not limited	
2:							
Abiqua	84	Not limited		Not limited		Not limited	
3:							
Abiqua, high precipitation	90	Not limited		Not limited		Not limited	
4:							
Abiqua, high precipitation	95	Not limited		Not limited		Not limited	
5:							
Abiqua, rarely flooded	86	Not limited		Not limited		Not limited	
6:							
Alsea	95	Not limited		Not limited		Not limited	
7:							
Alsea, rarely flooded	95	Not limited		Not limited		Not limited	
8:							
Amity	94	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.73	Depth to saturated zone	0.73	Depth to saturated zone	0.88
9:							
Apt	55	Not limited		Not limited		Somewhat limited	
						Slope	0.63
McDuff	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.03
10:							
Apt	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
McDuff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
11:							
Aquents	97	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
12:							
Awbrig	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
13:							
Bashaw, nonflooded	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
14:							
Bashaw, flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
		Flooding	0.40	Flooding	0.40	Ponding	1.00
15:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Too clayey	1.00
		Too clayey	0.50	Too clayey	0.50	Ponding	1.00
16:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Too clayey	1.00
		Too clayey	0.50	Too clayey	0.50	Ponding	1.00
17:							
Bellpine	68	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
Jory, sedimentary bedrock	24	Not limited		Not limited		Not limited	
18:							
Bellpine	51	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock	42	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
19:							
Bellpine	52	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock	43	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
20:							
Bellpine	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
21:							
Blachly	50	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Kilowan	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.35
22:							
Blachly	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Kilowan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.35
23:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
24:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
25:							
Briedwell	84	Not limited		Not limited		Somewhat limited	
						Gravel content	0.68
26:							
Briedwell	94	Not limited		Not limited		Somewhat limited	
						Slope	0.96
						Gravel content	0.68
27:							
Burntwoods	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
28:							
Camas	87	Not limited		Not limited		Somewhat limited	
						Droughty	0.99
						Flooding	0.60
						Gravel content	0.05
29:							
Camas, rarely flooded	90	Not limited		Not limited		Very limited	
						Droughty	1.00
						Gravel content	0.92
30:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
Romanose	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.55
31:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
Romanose	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.55
32:							
Caterl	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Giveout	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
33:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
34:							
Chapman	92	Not limited		Not limited		Not limited	
35:							
Chapman, high precipitation	95	Not limited		Not limited		Not limited	
36:							
Chehalem	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
37:							
Chehalem	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
38:							
Chehalis	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
39:							
Chehalis, high precipitation	95	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
40:							
Chehalis	92	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
41:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Blodgett	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.99
42:							
Chintimini	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Blodgett	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.99
Fiverivers	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
43:							
Chintimini	45	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
Grassmountain	45	Not limited		Not limited		Somewhat limited	
						Slope	0.63

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
44:							
Chismore------------	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.35
Pyburn--------------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
45:							
Chismore------------	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.35
						Slope	0.01
Pyburn--------------	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
46:							
Cloquato------------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
47:							
Cloquato, high precipitation------	95	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
48:							
Coburg, occasionally flooded------------	45	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.19
Coburg, rarely flooded------------	44	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
49:							
Coburg--------------	88	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.02
50:							
Coburg, rarely flooded------------	89	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
51:							
Concord-------------	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
52:							
Conser	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
53:							
Dayton	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
54:							
Dayton, clay substratum	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
55:							
Digger	50	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Droughty	0.35
						Depth to bedrock	0.01
Bohannon	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.16
56:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.35
						Depth to bedrock	0.01
Remote	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.15
Umpcoos	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	1.00
57:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.35
						Depth to bedrock	0.01
Umpcoos	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	1.00
Remote	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.15

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Paths and trails: Value	Off-road motorcycle trails: Rating class and limiting features	Off-road motorcycle trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
58:							
Dixonville	46	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Slope	1.00
						Depth to bedrock	0.16
Gellatly	43	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Slope	1.00
59:							
Dixonville	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Gellatly	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
60:							
Dixonville	34	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.16
Gellatly	28	Not limited		Not limited		Not limited	
Witham	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
61:							
Dupee	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
62:							
Dupee	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.02			Slope	1.00
63:							
Elsie	80	Not limited		Not limited		Not limited	
64:							
Elsie	85	Not limited		Not limited		Somewhat limited	
						Slope	0.37
65:							
Fiverivers	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
Grassmountain	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Chintimini	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
66:							
Fluvents	53	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
66:							
Fluvaquents	37	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
67:							
Fluvents, high precipitation	50	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Fluvaquents, high precipitation	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
68:							
Formader	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.71
						Slope	0.63
Hemcross	35	Not limited		Not limited		Somewhat limited	
						Slope	0.63
69:							
Formader	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.71
Hemcross	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
70:							
Formader	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.71
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Hemcross	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
71:							
Gelderman	47	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.46
Jory, basalt bedrock	42	Not limited		Not limited		Not limited	
72:							
Goodin	30	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.54
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
72:							
Chehulpum	20	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.99
73:							
Goodin	31	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.54
Chehulpum	21	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.99
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.02			Slope	1.00
74:							
Grassmountain	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Fiverivers	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.06
Chintimini	15	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
75:							
Harslow	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Kilchis	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.15
Rock outcrop	15	Not rated		Not rated		Not rated	
76:							
Harslow	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Depth to bedrock	0.46

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
78:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.46
79:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00			Depth to saturated zone	1.00
						Depth to bedrock	0.46
80:							
Hazelair	82	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.96
						Depth to bedrock	0.06
81:							
Helmick	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
82:							
Helvetia	94	Not limited		Not limited		Not limited	
83:							
Hemcross	55	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Klistan	35	Not limited		Not limited		Somewhat limited	
						Slope	0.63
84:							
Hemcross	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Klistan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
85:							
Holcomb	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
86:							
Honeygrove	50	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Peavine, sedimentary bedrock	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.06

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
87:							
Honeygrove----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Peavine, sedimentary bedrock------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
88:							
Honeygrove, basalt bedrock------------	50	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Peavine, basalt bedrock------------	35	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.03
89:							
Honeygrove, basalt bedrock------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Peavine, basalt bedrock------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.03
90:							
Honeygrove, basalt bedrock------------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Shivigny------------	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Droughty	0.57
91:							
Jory, basalt bedrock	86	Not limited		Not limited		Not limited	
92:							
Jory, basalt bedrock	86	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
93:							
Jory, basalt bedrock	84	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
94:							
Jory, sedimentary bedrock------------	81	Not limited		Not limited		Not limited	
95:							
Jory, sedimentary bedrock------------	81	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96:							
Jory, sedimentary bedrock	86	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
97:							
Jory, sedimentary bedrock	72	Not limited		Not limited		Not limited	
Dupee	22	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
98:							
Jory, basalt bedrock	57	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Slope	1.00
Gelderman	20	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Slope	1.00
						Depth to bedrock	0.46
99:							
Jory, basalt bedrock	55	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
Nekia	32	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.06
100:							
Jory, basalt bedrock	55	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
Nekia	32	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.06
101:							
Kirkendall	40	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
Nekoma	30	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Quosatana	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
102:							
Klistan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Harslow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
103:							
Klistan	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
103:							
Harslow	25	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.16
Hemcross	20	Not limited		Not limited		Somewhat limited	
						Slope	0.63
104:							
Laderly	35	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.03
Murtip	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Giveout	25	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.06
105:							
Linslaw	91	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.73	Depth to saturated zone	0.73	Depth to saturated zone	0.88
106:							
Linslaw	92	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.73	Depth to saturated zone	0.73	Depth to saturated zone	0.88
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.15
						Depth to bedrock	0.06
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
108:							
Lurnick	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.15
						Depth to bedrock	0.06
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
Maryspeak	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
109:							
MacDunn	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
109:							
Price	28	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
110:							
Malabon	89	Not limited		Not limited		Not limited	
111:							
Malabon, rarely flooded	89	Not limited		Not limited		Not limited	
112:							
Maryspeak	90	Not limited		Not limited		Somewhat limited	
						Slope	0.63
113:							
McAlpin	82	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Depth to saturated zone	0.28
114:							
McAlpin	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Depth to saturated zone	0.28
115:							
McAlpin, high precipitation	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Depth to saturated zone	0.28
116:							
McAlpin, high precipitation	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Depth to saturated zone	0.28
117:							
McAlpin, rarely flooded	81	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.35
118:							
McBee	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
119:							
McBee, nonflooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
120:							
Meda	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Treharne	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
Wasson	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
121:							
Mulkey	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Slope	0.63
						Large stones content	0.01
122:							
Mulkey	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Large stones content	0.01
123:							
Murtip	45	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Giveout	25	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.06
Laderly	20	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.03
124:							
Nekoma	50	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Fluvaquents	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
125:							
Newberg	92	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
126:							
Newberg, high precipitation	95	Not limited		Not limited		Somewhat limited	
						Flooding	0.60

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
127:							
Newberg	92	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
128:							
Oldblue	55	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Burntwoods	35	Not limited		Not limited		Somewhat limited	
						Slope	0.63
129:							
Panther	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
130:							
Pengra	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
131:							
Philomath	76	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.86
132:							
Pilchuck	79	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Blachly	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Bohannon	20	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.16
135:							
Preacher	50	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Bohannon	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.16
136:							
Preacher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Bohannon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
136:							
Slickrock-----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
137:							
Price---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
MacDunn-------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Ritner--------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
138:							
Riverwash-----------	100	Not rated		Not rated		Not rated	
139:							
Salem---------------	91	Not limited		Not limited		Somewhat limited	
						Large stones content	0.01
140:							
Santiam-------------	91	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.35
141:							
Santiam-------------	93	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Slope	0.96
						Depth to saturated zone	0.35
142:							
Sevencedars---------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Newanna-------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.20
143:							
Sevencedars---------	35	Not limited		Not limited		Somewhat limited	
						Slope	0.63
Newanna-------------	30	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.20
Woodspoint----------	25	Not limited		Not limited		Somewhat limited	
						Slope	0.63
144:							
Sevencedars---------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
144:							
Newanna-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.20
Woodspoint----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
145:							
Shivigny------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.57
Honeygrove, basalt bedrock------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
146:							
Slickrock-----------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.63
147:							
Steiwer-------------	49	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
Chehulpum-----------	41	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.99
148:							
Steiwer-------------	50	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Slope	1.00
						Depth to bedrock	0.80
Chehulpum-----------	40	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.99
149:							
Steiwer-------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
Chehulpum-----------	39	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.99
150:							
Treharne------------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
Eilertsen-----------	30	Not limited		Not limited		Not limited	
Zyzzug--------------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
151:							
Valsetz	55	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Depth to bedrock	0.10
Yellowstone	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Slope	0.63
						Droughty	0.34
152:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.10
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.34
153:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.10
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.34
154:							
Verboort	97	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
155:							
Waldo	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Flooding	0.60
156:							
Waldo, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Flooding	0.60
157:							
Wapato	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Flooding	0.60

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
158:							
Wapato, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Flooding	0.60
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to saturated zone	0.19
Willakenzie	33	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.29
161:							
Wellsdale	54	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
Willakenzie	33	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.29
Dupee	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
162:							
Wellsdale, north slopes	60	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to saturated zone	0.19
Willakenzie, north slopes	27	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.29
Dupee, north slopes	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.02			Slope	1.00
163:							
Willakenzie	83	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.29
164:							
Willakenzie	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.29

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
165:							
Willakenzie---------	86	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.29
166:							
Willakenzie---------	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.29
167:							
Willakenzie, south slopes-------------	78	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.29
Wellsdale, south slopes-------------	15	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to saturated zone	0.19
168:							
Willakenzie---------	79	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.29
Wellsdale-----------	15	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to saturated zone	0.19
169:							
Willamette----------	95	Not limited		Not limited		Not limited	
170:							
Willamette----------	84	Not limited		Not limited		Not limited	
171:							
Willamette----------	97	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
172:							
Witham--------------	79	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
173:							
Witham--------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.02			Slope	1.00
174:							
Witzel--------------	46	Somewhat limited		Somewhat limited		Very limited	
		Large stones content	0.50	Large stones content	0.50	Large stones content	1.00
						Depth to bedrock	1.00
						Droughty	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
174:							
Ritner	44	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.01
175:							
Witzel	46	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.68	Large stones content	0.50	Large stones content	1.00
		Large stones content	0.50			Depth to bedrock	1.00
						Droughty	1.00
						Slope	1.00
Ritner	44	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Slope	1.00
						Depth to bedrock	0.01
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.50	Large stones content	0.50	Large stones content	1.00
						Depth to bedrock	1.00
						Droughty	1.00
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.01
177:							
Woodburn	92	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.12
178:							
Woodburn	92	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.12
179:							
Woodburn	94	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to saturated zone	0.12
180:							
Woodburn	95	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.78	Slope	1.00
						Depth to saturated zone	0.12

Table 15.--Dwellings and Small Commercial Buildings

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
1:							
Abiqua	89	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
2:							
Abiqua	84	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3:							
Abiqua, high precipitation	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
4:							
Abiqua, high precipitation	95	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
5:							
Abiqua, rarely flooded	86	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
6:							
Alsea	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.98	Shrink-swell	0.50
				Shrink-swell	0.50		
7:							
Alsea, rarely flooded	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.98	Shrink-swell	0.50
				Shrink-swell	0.50		
8:							
Amity	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.02	Shrink-swell	0.01	Shrink-swell	0.02
9:							
Apt	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
McDuff	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.03		

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:							
Apt	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
McDuff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.03		
11:							
Aquents	97	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
12:							
Awbrig	87	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
13:							
Bashaw, nonflooded	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.50
14:							
Bashaw, flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
15:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
16:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
17:							
Bellpine	68	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Slope	0.88
				Shrink-swell	0.50	Shrink-swell	0.50

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
17:							
Jory, sedimentary bedrock	24	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
18:							
Bellpine	51	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Shrink-swell	0.50
				Shrink-swell	0.50		
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
19:							
Bellpine	52	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Shrink-swell	0.50
				Shrink-swell	0.50		
Jory, sedimentary bedrock	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
20:							
Bellpine	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Shrink-swell	0.50
				Shrink-swell	0.50		
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
21:							
Blachly	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Kilowan	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.35		
22:							
Blachly	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
22:							
Kilowan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.35		
23:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.15		
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
24:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.15		
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
25:							
Briedwell	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
26:							
Briedwell	94	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
27:							
Burntwoods	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.20	Large stones content	0.20	Large stones content	0.20
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
28:							
Camas	87	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
29:							
Camas, rarely flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
30:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Large stones content	0.19
				Depth to hard bedrock	0.08		
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.95	Depth to hard bedrock	1.00	Large stones content	0.95
		Depth to hard bedrock	0.03	Large stones content	0.95	Depth to hard bedrock	0.03
Romanose	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.99	Large stones content	0.99	Large stones content	0.99
31:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Large stones content	0.19
				Depth to hard bedrock	0.08		
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.95	Depth to hard bedrock	1.00	Large stones content	0.95
		Depth to hard bedrock	0.03	Large stones content	0.95	Depth to hard bedrock	0.03
Romanose	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.99	Large stones content	0.99	Large stones content	0.99
32:							
Caterl	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Large stones content	0.19
				Depth to hard bedrock	0.08		
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Giveout	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.06		

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
33:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Large stones content	0.19
				Depth to hard bedrock	0.08		
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Laderly	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.95	Depth to hard bedrock	1.00	Large stones content	0.95
		Depth to hard bedrock	0.03	Large stones content	0.95	Depth to hard bedrock	0.03
34:							
Chapman	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
35:							
Chapman, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
36:							
Chehalem	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
37:							
Chehalem	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
38:							
Chehalis	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
39:							
Chehalis, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
40:							
Chehalis	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.01			Shrink-swell	0.01

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
41:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.03	Depth to hard bedrock	0.32	Large stones content	0.03
				Large stones content	0.03		
Blodgett	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Large stones content	0.29	Large stones content	0.29	Large stones content	0.29
42:							
Chintimini	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.03	Depth to hard bedrock	0.32	Large stones content	0.03
				Large stones content	0.03		
Blodgett	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Large stones content	0.29	Large stones content	0.29	Large stones content	0.29
Fiverivers	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.06		
43:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.03	Depth to hard bedrock	0.32	Large stones content	0.03
				Large stones content	0.03		
Grassmountain	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
44:							
Chismore	55	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.67	Depth to saturated zone	1.00	Depth to saturated zone	0.67
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
44:							
Pyburn	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
45:							
Chismore	60	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.67	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Depth to saturated zone	0.67
		Slope	0.01	Slope	0.01	Shrink-swell	0.50
Pyburn	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.12
46:							
Cloquato	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
47:							
Cloquato, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
48:							
Coburg, occasionally flooded	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
Coburg, rarely flooded	44	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
49:							
Coburg	88	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.03	Shrink-swell	0.50	Depth to saturated zone	0.03
50:							
Coburg, rarely flooded	89	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
51:							
Concord	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01
52:							
Conser	86	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
53:							
Dayton	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Ponding	1.00	Shrink-swell	1.00
		Ponding	1.00			Ponding	1.00
54:							
Dayton, clay substratum	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
55:							
Digger	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Large stones content	0.32	Depth to hard bedrock	0.61	Large stones content	0.32
				Large stones content	0.32		
				Depth to soft bedrock	0.01		
Bohannon	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.15		
56:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.32	Depth to hard bedrock	0.61	Large stones content	0.32
				Large stones content	0.32		
				Depth to soft bedrock	0.01		
Remote	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
56:							
Umpcoos	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.68	Large stones content	0.68	Large stones content	0.68
57:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.32	Depth to hard bedrock	0.61	Large stones content	0.32
				Large stones content	0.32		
				Depth to soft bedrock	0.01		
Umpcoos	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.68	Large stones content	0.68	Large stones content	0.68
Remote	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
58:							
Dixonville	46	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.15		
Gellatly	43	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Shrink-swell	1.00
59:							
Dixonville	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.15		
Gellatly	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
60:							
Dixonville	34	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.15	Slope	0.88
Gellatly	28	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
60:							
Witham	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
61:							
Dupee	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
62:							
Dupee	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	1.00	Slope	1.00	Depth to saturated zone	1.00
		Slope	1.00	Shrink-swell	1.00	Shrink-swell	1.00
63:							
Elsie	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
64:							
Elsie	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.37	Slope	0.37	Shrink-swell	0.50
65:							
Fiverivers	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.06		
Grassmountain	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Chintimini	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.03	Depth to hard bedrock	0.32	Large stones content	0.03
				Large stones content	0.03		
66:							
Fluvents	53	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Fluvaquents	37	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
67:							
Fluvents, high precipitation	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Fluvaquents, high precipitation	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
68:							
Formader	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to soft bedrock	0.71	Slope	1.00
		Shrink-swell	0.50	Slope	0.63	Shrink-swell	0.50
				Shrink-swell	0.50		
Hemcross	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
69:							
Formader	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.71	Shrink-swell	0.50
				Shrink-swell	0.50		
Hemcross	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
70:							
Formader	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.71	Shrink-swell	0.50
				Shrink-swell	0.50		
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Large stones content	0.16	Large stones content	0.16
				Depth to hard bedrock	0.05		
Hemcross	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
71:							
Gelderman	47	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
				Depth to soft bedrock	0.46	Shrink-swell	0.50
Jory, basalt bedrock	42	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.78	Slope	0.88
						Shrink-swell	0.50

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
72:							
Goodin	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to soft bedrock	0.54	Slope	0.88
				Shrink-swell	0.50	Shrink-swell	0.50
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
Chehulpum	20	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
						Slope	0.88
73:							
Goodin	31	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.54	Shrink-swell	0.50
				Shrink-swell	0.50		
Chehulpum	21	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	0.50	Slope	1.00	Depth to soft bedrock	1.00
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	1.00	Slope	1.00	Depth to saturated zone	1.00
		Slope	1.00	Shrink-swell	1.00	Shrink-swell	1.00
74:							
Grassmountain	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Fiverivers	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.06		
Chintimini	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.03	Depth to hard bedrock	0.32	Large stones content	0.03
				Large stones content	0.03		
75:							
Harslow	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.46	Depth to hard bedrock	1.00	Large stones content	0.46
		Depth to hard bedrock	0.15	Large stones content	0.46	Depth to hard bedrock	0.15

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
75:							
Kilchis	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.96	Large stones content	0.96	Large stones content	0.96
Rock outcrop	15	Not rated		Not rated		Not rated	
76:							
Harslow	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.46	Depth to hard bedrock	1.00	Large stones content	0.46
		Depth to hard bedrock	0.15	Large stones content	0.46	Depth to hard bedrock	0.15
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Large stones content	0.16	Large stones content	0.16
				Depth to hard bedrock	0.05		
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.46	Slope	0.88
78:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.46		
79:							
Hazelair	81	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.46		

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
80:							
Hazelair	82	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.96	Slope	0.96	Slope	1.00
				Depth to soft bedrock	0.06		
81:							
Helmick	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
82:							
Helvetia	94	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.61	Slope	0.12
83:							
Hemcross	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Klistan	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Large stones content	0.16	Large stones content	0.16	Large stones content	0.16
				Depth to hard bedrock	0.05		
84:							
Hemcross	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Klistan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Large stones content	0.16	Large stones content	0.16
				Depth to hard bedrock	0.05		
85:							
Holcomb	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98
86:							
Honeygrove	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
86:							
Peavine, sedimentary bedrock	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.06		
87:							
Honeygrove	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Peavine, sedimentary bedrock	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.06		
88:							
Honeygrove, basalt bedrock	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Peavine, basalt bedrock	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.03		
89:							
Honeygrove, basalt bedrock	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Peavine, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.03		
90:							
Honeygrove, basalt bedrock	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Shivigny	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
		Large stones content	0.05	Large stones content	0.05	Large stones content	0.05

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
91:							
Jory, basalt bedrock	86	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.78	Slope	0.88
						Shrink-swell	0.50
92:							
Jory, basalt bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.78	Shrink-swell	0.50
93:							
Jory, basalt bedrock	84	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.78	Shrink-swell	0.50
94:							
Jory, sedimentary bedrock	81	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
95:							
Jory, sedimentary bedrock	81	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
96:							
Jory, sedimentary bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
97:							
Jory, sedimentary bedrock	72	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
Dupee	22	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
98:							
Jory, basalt bedrock	57	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.78	Shrink-swell	0.50
Gelderman	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.46		

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
99:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.78	Shrink-swell	0.50
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.06	Shrink-swell	0.50	Depth to hard bedrock	0.06
100:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.78	Shrink-swell	0.50
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.06	Shrink-swell	0.50	Depth to hard bedrock	0.06
101:							
Kirkendall	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
				Shrink-swell	0.50		
Nekoma	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.61		
Quosatana	15	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
102:							
Klistan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Large stones content	0.16	Large stones content	0.16
				Depth to hard bedrock	0.05		
Harslow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.46	Depth to hard bedrock	1.00	Large stones content	0.46
		Depth to hard bedrock	0.15	Large stones content	0.46	Depth to hard bedrock	0.15

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
103:							
Klistan	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Large stones content	0.16	Large stones content	0.16	Large stones content	0.16
				Depth to hard bedrock	0.05		
Harslow	25	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.46	Slope	0.63	Large stones content	0.46
		Depth to hard bedrock	0.15	Large stones content	0.46	Depth to hard bedrock	0.15
Hemcross	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
104:							
Laderly	35	Somewhat limited		Very limited		Very limited	
		Large stones content	0.95	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.63	Large stones content	0.95	Large stones content	0.95
		Depth to hard bedrock	0.03	Slope	0.63	Depth to hard bedrock	0.03
Murtip	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Giveout	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.06		
105:							
Linslaw	91	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
106:							
Linslaw	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
						Slope	0.12
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
				Depth to hard bedrock	0.99		
				Depth to soft bedrock	0.06		

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
107:							
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
108:							
Lurnick	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
				Depth to hard bedrock	0.99		
				Depth to soft bedrock	0.06		
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
Maryspeak	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
109:							
MacDunn	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
		Large stones content	0.25	Large stones content	0.25	Large stones content	0.25
Price	28	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.01	Shrink-swell	0.50	Depth to hard bedrock	0.01
110:							
Malabon	89	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
111:							
Malabon, rarely flooded	89	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
112:							
Maryspeak	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
113:							
McAlpin	82	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.56	Shrink-swell	1.00	Depth to saturated zone	0.56
114:							
McAlpin	84	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.56	Shrink-swell	1.00	Depth to saturated zone	0.56
115:							
McAlpin, high precipitation	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.56	Shrink-swell	1.00	Depth to saturated zone	0.56
116:							
McAlpin, high precipitation	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.56	Shrink-swell	1.00	Depth to saturated zone	0.56
117:							
McAlpin, rarely flooded	81	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.67	Shrink-swell	1.00	Depth to saturated zone	0.67
118:							
McBee	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
119:							
McBee, nonflooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
120:							
Meda	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Treharne	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Wasson	15	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
121:							
Mulkey	85	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.79	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to hard bedrock	0.79
122:							
Mulkey	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.79	Depth to hard bedrock	1.00	Depth to hard bedrock	0.79
123:							
Murtip	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Giveout	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.06		
Laderly	20	Somewhat limited		Very limited		Very limited	
		Large stones content	0.95	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.63	Large stones content	0.95	Large stones content	0.95
		Depth to hard bedrock	0.03	Slope	0.63	Depth to hard bedrock	0.03
124:							
Nekoma	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.61		
Fluvaquents	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
125:							
Newberg	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
126:							
Newberg, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
127:							
Newberg	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
128:							
Oldblue	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Burntwoods	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Large stones content	0.20	Large stones content	0.20	Large stones content	0.20

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
129:							
Panther	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.50
130:							
Pengra	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
131:							
Philomath	76	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Shrink-swell	1.00
						Slope	0.88
132:							
Pilchuck	79	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Blachly	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Bohannon	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.15		
135:							
Preacher	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Bohannon	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to soft bedrock	0.15		
136:							
Preacher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
136:							
Bohannon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.15		
Slickrock	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
137:							
Price	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
MacDunn	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
		Large stones content	0.25	Large stones content	0.25	Large stones content	0.25
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.01	Shrink-swell	0.50	Depth to hard bedrock	0.01
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
140:							
Santiam	91	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.67	Shrink-swell	1.00	Depth to saturated zone	0.67
						Slope	0.12
141:							
Santiam	93	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.96	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.67	Slope	0.96	Depth to saturated zone	0.67
142:							
Sevencedars	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Depth to hard bedrock	0.20	Large stones content	1.00	Depth to hard bedrock	0.20

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
143:							
Sevencedars---------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Newanna-------------	30	Very limited		Very limited		Very limited	
		Large stones content	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.63	Large stones content	1.00	Large stones content	1.00
		Depth to hard bedrock	0.20	Slope	0.63	Depth to hard bedrock	0.20
Woodspoint----------	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to hard bedrock	0.77	Slope	1.00
				Slope	0.63		
144:							
Sevencedars---------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Newanna-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Depth to hard bedrock	0.20	Large stones content	1.00	Depth to hard bedrock	0.20
Woodspoint----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.77		
145:							
Shivigny------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
		Large stones content	0.05	Large stones content	0.05	Large stones content	0.05
Honeygrove, basalt bedrock------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
146:							
Slickrock-----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
147:							
Steiwer-------------	49	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Slope	0.88
				Shrink-swell	0.50	Shrink-swell	0.50
Chehulpum-----------	41	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
						Slope	0.88

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
148:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Shrink-swell	0.50
				Shrink-swell	0.50		
Chehulpum	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	0.50	Slope	1.00	Depth to soft bedrock	1.00
149:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.79	Shrink-swell	0.50
				Shrink-swell	0.50		
Chehulpum	39	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
150:							
Treharne	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Eilertsen	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.73	Shrink-swell	0.50
				Shrink-swell	0.50		
Zyzzug	20	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
151:							
Valsetz	55	Very limited		Very limited		Very limited	
		Large stones content	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Slope	0.63	Large stones content	1.00	Slope	1.00
		Depth to hard bedrock	0.10	Slope	0.63	Depth to hard bedrock	0.10
Yellowstone	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Slope	0.63	Slope	0.63	Slope	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
152:							
Valsetz-------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Depth to hard bedrock	0.10	Large stones content	1.00	Depth to hard bedrock	0.10
Yellowstone---------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
153:							
Valsetz-------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Depth to hard bedrock	0.10	Large stones content	1.00	Depth to hard bedrock	0.10
Yellowstone---------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
154:							
Verboort------------	97	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	0.22	Shrink-swell	1.00
155:							
Waldo---------------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
156:							
Waldo, high precipitation------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
157:							
Wapato	89	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.01	Shrink-swell	0.50	Shrink-swell	0.01
158:							
Wapato, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Willakenzie	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		
161:							
Wellsdale	54	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	0.88
						Depth to saturated zone	0.39
Willakenzie	33	Not limited		Somewhat limited		Somewhat limited	
				Depth to soft bedrock	0.29	Slope	0.88
Dupee	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.12
162:							
Wellsdale, north slopes	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Depth to saturated zone	0.39	Slope	1.00	Depth to saturated zone	0.39
Willakenzie, north slopes	27	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
162:							
Dupee, north slopes	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	1.00	Slope	1.00	Depth to saturated zone	1.00
		Slope	1.00	Shrink-swell	1.00	Shrink-swell	1.00
163:							
Willakenzie---------	83	Not limited		Somewhat limited		Somewhat limited	
				Depth to soft bedrock	0.29	Slope	0.88
164:							
Willakenzie---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		
165:							
Willakenzie---------	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		
166:							
Willakenzie---------	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		
167:							
Willakenzie, south slopes-------------	78	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		
Wellsdale, south slopes-------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Depth to saturated zone	0.39	Slope	1.00	Depth to saturated zone	0.39
168:							
Willakenzie---------	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29		
Wellsdale-----------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
169:							
Willamette----------	95	Not limited		Not limited		Not limited	

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
170:							
Willamette	84	Not limited		Not limited		Somewhat limited	
						Slope	0.88
171:							
Willamette	97	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
172:							
Witham	79	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.88
173:							
Witham	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
174:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
						Slope	0.88
Ritner	44	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Slope	0.88
		Depth to hard bedrock	0.01	Shrink-swell	0.50	Shrink-swell	0.50
						Depth to hard bedrock	0.01
175:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.01	Shrink-swell	0.50	Depth to hard bedrock	0.01
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00

Table 15.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
176:							
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.01	Shrink-swell	0.50	Depth to hard bedrock	0.01
177:							
Woodburn	92	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.24	Depth to saturated zone	1.00	Depth to saturated zone	0.24
		Shrink-swell	0.01			Shrink-swell	0.01
178:							
Woodburn	92	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.24	Depth to saturated zone	1.00	Slope	0.88
		Shrink-swell	0.01			Depth to saturated zone	0.24
						Shrink-swell	0.01
179:							
Woodburn	94	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Depth to saturated zone	0.24	Slope	1.00	Depth to saturated zone	0.24
		Shrink-swell	0.01			Shrink-swell	0.01
180:							
Woodburn	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.24	Depth to saturated zone	1.00	Depth to saturated zone	0.24
		Shrink-swell	0.01			Shrink-swell	0.01

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Abiqua	89	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
2:							
Abiqua	84	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
3:							
Abiqua, high precipitation	90	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
4:							
Abiqua, high precipitation	95	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
5:							
Abiqua, rarely flooded	86	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
6:							
Alsea	95	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.98		
		Shrink-swell	0.50	Cutbanks cave	0.10		
7:							
Alsea, rarely flooded	95	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.98		
		Shrink-swell	0.50				
		Flooding	0.40	Cutbanks cave	0.10		
8:							
Amity	94	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Depth to saturated zone	0.88	Cutbanks cave	0.10		
		Shrink-swell	0.02				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
9:							
Apt	55	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
McDuff	30	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.32	Depth to bedrock	0.03
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to soft bedrock	0.03		
10:							
Apt	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
McDuff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.32	Depth to bedrock	0.03
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to soft bedrock	0.03		
11:							
Aquents	97	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
12:							
Awbrig	87	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Too clayey	0.88		
		Ponding	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
13:							
Bashaw, nonflooded	89	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Low strength	1.00	Too clayey	1.00		
14:							
Bashaw, flooded	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	0.80		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
15:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Low strength	1.00	Too clayey	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
16:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Low strength	1.00	Too clayey	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
17:							
Bellpine	68	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Too clayey	0.59		
				Cutbanks cave	0.10		
Jory, sedimentary bedrock	24	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
18:							
Bellpine	51	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Too clayey	0.59		
				Cutbanks cave	0.10		
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
19:							
Bellpine	52	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Too clayey	0.59		
				Cutbanks cave	0.10		
Jory, sedimentary bedrock	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
20:							
Bellpine------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Too clayey	0.59		
				Cutbanks cave	0.10		
Jory, sedimentary bedrock------------	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
21:							
Blachly-------------	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.32		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Kilowan-------------	40	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Depth to soft bedrock	0.35	Depth to bedrock	0.35
		Shrink-swell	0.50	Too clayey	0.12		
				Cutbanks cave	0.10		
22:							
Blachly-------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.32		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Kilowan-------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.35	Depth to bedrock	0.35
		Shrink-swell	0.50	Too clayey	0.12		
				Cutbanks cave	0.10		
23:							
Bohannon------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Depth to bedrock	0.16
				Depth to soft bedrock	0.15		
Preacher------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Low strength	0.22				
24:							
Bohannon------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Depth to bedrock	0.16
				Depth to soft bedrock	0.15		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
24:							
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Low strength	0.22				
25:							
Briedwell	84	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Cutbanks cave	1.00	Gravel content	0.68
26:							
Briedwell	94	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.96	Cutbanks cave	1.00	Slope	0.96
		Shrink-swell	0.50	Slope	0.96	Gravel content	0.68
27:							
Burntwoods	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.20	Large stones content	0.20		
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10		
28:							
Camas	87	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Droughty	0.99
				Flooding	0.60	Flooding	0.60
						Gravel content	0.05
29:							
Camas, rarely flooded	90	Somewhat limited		Very limited		Very limited	
		Flooding	0.40	Cutbanks cave	1.00	Droughty	1.00
						Gravel content	0.92
30:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.19	Large stones content	0.19		
				Depth to hard bedrock	0.08		
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.95	Slope	1.00	Depth to bedrock	0.03
		Frost action	0.50	Large stones content	0.95		
		Depth to hard bedrock	0.03	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
30:							
Romanose	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Large stones content	0.99	Large stones content	0.99	Droughty	0.55
		Frost action	0.50				
31:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.19	Large stones content	0.19		
				Depth to hard bedrock	0.08		
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.95	Slope	1.00	Depth to bedrock	0.03
		Frost action	0.50	Large stones content	0.95		
		Depth to hard bedrock	0.03	Cutbanks cave	0.10		
Romanose	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Large stones content	0.99	Large stones content	0.99	Droughty	0.55
		Frost action	0.50				
32:							
Caterl	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.19	Large stones content	0.19		
				Depth to hard bedrock	0.08		
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
Giveout	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Depth to bedrock	0.06
				Depth to soft bedrock	0.06		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
33:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.19	Large stones content	0.19		
				Depth to hard bedrock	0.08		
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
Laderly	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.95	Slope	1.00	Depth to bedrock	0.03
		Frost action	0.50	Large stones content	0.95		
		Depth to hard bedrock	0.03	Cutbanks cave	0.10		
34:							
Chapman	92	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
		Low strength	0.22				
		Shrink-swell	0.01				
35:							
Chapman, high precipitation	95	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
		Low strength	0.22				
		Shrink-swell	0.01				
36:							
Chehalem	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
37:							
Chehalem	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
38:							
Chehalis	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.01				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
39:							
Chehalis, high precipitation	95	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.01				
40:							
Chehalis	92	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.01				
41:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.03	Depth to hard bedrock	0.32		
				Large stones content	0.03		
Blodgett	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
		Slope	1.00	Depth to soft bedrock	1.00	Droughty	0.99
		Depth to soft bedrock	1.00				
				Slope	1.00		
		Frost action	0.50	Large stones content	0.29		
		Large stones content	0.29				
42:							
Chintimini	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.03	Depth to hard bedrock	0.32		
				Large stones content	0.03		
Blodgett	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
		Slope	1.00	Depth to soft bedrock	1.00	Droughty	0.99
		Depth to soft bedrock	1.00				
				Slope	1.00		
		Frost action	0.50	Large stones content	0.29		
		Large stones content	0.29				
Fiverivers	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10	Depth to bedrock	0.06
		Frost action	0.50	Depth to soft bedrock	0.06		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
43:							
Chintimini----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.03	Depth to hard bedrock	0.32		
				Large stones content	0.03		
Grassmountain-------	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
44:							
Chismore------------	55	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.35
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.35	Too clayey	0.08		
Pyburn--------------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00	Too clayey	0.50	Ponding	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
45:							
Chismore------------	60	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.35
		Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.01
		Depth to saturated zone	0.35	Too clayey	0.08		
		Slope	0.01	Slope	0.01		
Pyburn--------------	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00	Too clayey	0.50	Ponding	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
46:							
Cloquato------------	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
47:							
Cloquato, high precipitation------	95	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
48:							
Coburg, occasionally flooded	45	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Low strength	1.00	Flooding	0.60	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.19	Too clayey	0.08		
Coburg, rarely flooded	44	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40	Too clayey	0.08		
		Depth to saturated zone	0.19				
49:							
Coburg	88	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.02
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.02				
50:							
Coburg, rarely flooded	89	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40	Too clayey	0.08		
		Depth to saturated zone	0.19				
51:							
Concord	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Low strength	0.22	Cutbanks cave	0.10		
		Shrink-swell	0.01	Too clayey	0.09		
52:							
Conser	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	1.00	Too clayey	0.68		
		Ponding	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
53:							
Dayton	93	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Ponding	1.00	Too clayey	0.09		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
54:							
Dayton, clay substratum	92	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Ponding	1.00	Too clayey	0.08		
55:							
Digger	50	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Large stones content	0.32	Slope	0.63	Droughty	0.35
				Depth to hard bedrock	0.61	Depth to bedrock	0.01
				Large stones content	0.32		
				Depth to soft bedrock	0.01		
Bohannon	40	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63	Depth to bedrock	0.16
				Depth to soft bedrock	0.15		
56:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.32	Cutbanks cave	1.00	Droughty	0.35
				Depth to hard bedrock	0.61	Depth to bedrock	0.01
				Large stones content	0.32		
				Depth to soft bedrock	0.01		
Remote	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Droughty	0.15
Umpcoos	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
						Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Droughty	1.00
		Large stones content	0.68	Large stones content	0.68		
57:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.32	Cutbanks cave	1.00	Droughty	0.35
				Depth to hard bedrock	0.61	Depth to bedrock	0.01
				Large stones content	0.32		
				Depth to soft bedrock	0.01		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
57:							
Umpcoos	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Large stones content	0.68	Large stones content	0.68	Droughty	1.00
Remote	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Droughty	0.15
58:							
Dixonville	46	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.32	Depth to bedrock	0.16
		Slope	1.00	Depth to soft bedrock	0.15		
				Cutbanks cave	0.10		
Gellatly	43	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.76		
		Slope	1.00	Cutbanks cave	0.10		
59:							
Dixonville	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.32	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15		
				Cutbanks cave	0.10		
Gellatly	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.76		
		Shrink-swell	1.00	Cutbanks cave	0.10		
60:							
Dixonville	34	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.32	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15		
				Cutbanks cave	0.10		
Gellatly	28	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.76		
		Shrink-swell	1.00	Cutbanks cave	0.10		
Witham	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	0.88		
		Low strength	1.00	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
61:							
Dupee	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
62:							
Dupee	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.12		
		Slope	1.00	Cutbanks cave	0.10		
63:							
Elsie	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
64:							
Elsie	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.37	Slope	0.37
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Slope	0.37				
65:							
Fiverivers	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10	Depth to bedrock	0.06
		Frost action	0.50	Depth to soft bedrock	0.06		
Grassmountain	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
Chintimini	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.03	Depth to hard bedrock	0.32		
				Large stones content	0.03		
66:							
Fluvents	53	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80		
Fluvaquents	37	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
				Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
67:							
Fluvents, high precipitation------	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80		
Fluvaquents, high precipitation------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
68:							
Formader------------	50	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Depth to bedrock	0.71
		Shrink-swell	0.50	Depth to soft bedrock	0.71	Slope	0.63
				Slope	0.63		
Hemcross------------	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
69:							
Formader------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	1.00	Depth to bedrock	0.71
				Depth to soft bedrock	0.71		
Hemcross------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
70:							
Formader------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	1.00	Depth to bedrock	0.71
				Depth to soft bedrock	0.71		
Klistan-------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Cutbanks cave	1.00		
				Large stones content	0.16		
				Depth to hard bedrock	0.05		
Hemcross------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
71:							
Gelderman-----------	47	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.46	Depth to bedrock	0.46
		Shrink-swell	0.50	Too clayey	0.32		
				Cutbanks cave	0.10		
Jory, basalt bedrock	42	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
72:							
Goodin--------------	30	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.54	Depth to bedrock	0.54
		Shrink-swell	0.50	Too clayey	0.50		
				Cutbanks cave	0.10		
Dupee---------------	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
Chehulpum-----------	20	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
						Droughty	0.99
				Cutbanks cave	0.10		
73:							
Goodin--------------	31	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.54	Depth to bedrock	0.54
		Shrink-swell	0.50	Too clayey	0.50		
				Cutbanks cave	0.10		
Chehulpum-----------	21	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
		Slope	1.00	Slope	1.00	Droughty	0.99
				Cutbanks cave	0.10		
Dupee---------------	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.12		
		Slope	1.00	Cutbanks cave	0.10		
74:							
Grassmountain-------	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
74:							
Fiverivers	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10	Depth to bedrock	0.06
		Frost action	0.50	Depth to soft bedrock	0.06		
Chintimini	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
		Large stones content	0.03	Depth to hard bedrock	0.32		
				Large stones content	0.03		
75:							
Harslow	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.46	Slope	1.00	Depth to bedrock	0.16
		Depth to hard bedrock	0.15	Large stones content	0.46		
				Cutbanks cave	0.10		
Kilchis	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Large stones content	0.96	Large stones content	0.96	Droughty	0.15
Rock outcrop	15	Not rated		Not rated		Not rated	
76:							
Harslow	35	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.46	Slope	1.00	Depth to bedrock	0.16
		Depth to hard bedrock	0.15	Large stones content	0.46		
				Cutbanks cave	0.10		
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Cutbanks cave	1.00		
				Large stones content	0.16		
				Depth to hard bedrock	0.05		
Rock outcrop	20	Not rated		Not rated		Not rated	
77:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	1.00	Depth to bedrock	0.46
		Shrink-swell	1.00	Depth to soft bedrock	0.46		
				Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
78:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	1.00	Slope	1.00
		Shrink-swell	1.00	Slope	1.00	Depth to bedrock	0.46
		Slope	1.00	Depth to soft bedrock	0.46		
				Cutbanks cave	0.10		
79:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	1.00	Depth to bedrock	0.46
		Shrink-swell	1.00	Depth to soft bedrock	0.46		
				Cutbanks cave	0.10		
80:							
Hazelair	82	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00	Slope	0.96
		Low strength	1.00	Slope	0.96	Depth to bedrock	0.06
		Slope	0.96	Cutbanks cave	0.10		
				Depth to soft bedrock	0.06		
81:							
Helmick	86	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00		
		Low strength	1.00	Cutbanks cave	0.10		
82:							
Helvetia	94	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.61		
		Shrink-swell	1.00	Too clayey	0.12		
				Cutbanks cave	0.10		
83:							
Hemcross	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
Klistan	35	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Large stones content	0.16	Slope	0.63		
				Large stones content	0.16		
				Depth to hard bedrock	0.05		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
84:							
Hemcross	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
Klistan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Cutbanks cave	1.00		
				Large stones content	0.16		
				Depth to hard bedrock	0.05		
85:							
Holcomb	85	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Low strength	1.00	Too clayey	0.50		
		Depth to saturated zone	0.75	Cutbanks cave	0.10		
86:							
Honeygrove	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.32		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Peavine, sedimentary bedrock	40	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.24	Depth to bedrock	0.06
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to soft bedrock	0.06		
87:							
Honeygrove	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.32		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Peavine, sedimentary bedrock	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.24	Depth to bedrock	0.06
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to soft bedrock	0.06		
88:							
Honeygrove, basalt bedrock	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.88	Slope	0.63
		Slope	0.63	Slope	0.63		
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
88:							
Peavine, basalt bedrock	35	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.50	Depth to bedrock	0.03
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to soft bedrock	0.03		
89:							
Honeygrove, basalt bedrock	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Peavine, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50	Depth to bedrock	0.03
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Depth to soft bedrock	0.03		
90:							
Honeygrove, basalt bedrock	55	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.88	Slope	0.63
		Slope	0.63	Slope	0.63		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Shivigny	30	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Shrink-swell	0.50	Slope	0.63	Droughty	0.57
		Large stones content	0.05	Too clayey	0.24		
				Large stones content	0.05		
91:							
Jory, basalt bedrock	86	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
92:							
Jory, basalt bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
93:							
Jory, basalt bedrock	84	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
94:							
Jory, sedimentary bedrock	81	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95:							
Jory, sedimentary bedrock------------	81	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
96:							
Jory, sedimentary bedrock------------	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
97:							
Jory, sedimentary bedrock------------	72	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Dupee---------------	22	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
98:							
Jory, basalt bedrock	57	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Gelderman-----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.46	Depth to bedrock	0.46
		Shrink-swell	0.50	Too clayey	0.32		
				Cutbanks cave	0.10		
99:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Nekia---------------	32	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.06
		Shrink-swell	0.50	Too clayey	0.32		
		Depth to hard bedrock	0.06	Cutbanks cave	0.10		
100:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
100:							
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.06
		Shrink-swell	0.50	Too clayey	0.32		
		Depth to hard bedrock	0.06	Cutbanks cave	0.10		
101:							
Kirkendall	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.95	Flooding	0.60
		Shrink-swell	0.50	Flooding	0.60		
				Cutbanks cave	0.10		
Nekoma	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80		
				Depth to saturated zone	0.61		
Quosatana	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
102:							
Klistan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.16	Cutbanks cave	1.00		
				Large stones content	0.16		
				Depth to hard bedrock	0.05		
Harslow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	0.46	Slope	1.00	Depth to bedrock	0.16
		Depth to hard bedrock	0.15	Large stones content	0.46		
				Cutbanks cave	0.10		
103:							
Klistan	40	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Large stones content	0.16	Slope	0.63		
				Large stones content	0.16		
				Depth to hard bedrock	0.05		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
103:							
Harslow	25	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	0.63
		Large stones content	0.46	Slope	0.63	Depth to bedrock	0.16
		Depth to hard bedrock	0.15	Large stones content	0.46		
				Cutbanks cave	0.10		
Hemcross	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
104:							
Laderly	35	Somewhat limited		Very limited		Somewhat limited	
		Large stones content	0.95	Depth to hard bedrock	1.00	Slope	0.63
		Slope	0.63	Large stones content	0.95	Depth to bedrock	0.03
		Frost action	0.50	Slope	0.63		
		Depth to hard bedrock	0.03	Cutbanks cave	0.10		
Murtip	30	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		
Giveout	25	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63	Depth to bedrock	0.06
				Depth to soft bedrock	0.06		
105:							
Linslaw	91	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Depth to saturated zone	0.88	Too clayey	0.76		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
106:							
Linslaw	92	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Depth to saturated zone	0.88	Too clayey	0.76		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Droughty	0.15
		Frost action	0.50	Depth to hard bedrock	0.99	Depth to bedrock	0.06
				Cutbanks cave	0.10		
				Depth to soft bedrock	0.06		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107:							
Luckiamute----------	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Droughty	1.00
		Frost action	0.50				
108:							
Lurnick-------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Droughty	0.15
		Frost action	0.50	Depth to hard bedrock	0.99	Depth to bedrock	0.06
				Cutbanks cave	0.10		
				Depth to soft bedrock	0.06		
Luckiamute----------	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Droughty	1.00
		Frost action	0.50				
Maryspeak-----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
109:							
MacDunn-------------	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Large stones content	0.25		
		Large stones content	0.25	Too clayey	0.12		
				Cutbanks cave	0.10		
Price---------------	28	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.78	Too clayey	0.50		
Ritner--------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to hard bedrock	0.01	Too clayey	0.08		
110:							
Malabon-------------	89	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
111:							
Malabon, rarely flooded	89	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
		Flooding	0.40				
112:							
Maryspeak	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		
113:							
McAlpin	82	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.28
		Low strength	1.00	Too clayey	0.12		
		Depth to saturated zone	0.28	Cutbanks cave	0.10		
114:							
McAlpin	84	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.28
		Low strength	1.00	Too clayey	0.12		
		Depth to saturated zone	0.28	Cutbanks cave	0.10		
115:							
McAlpin, high precipitation	90	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.28
		Low strength	1.00	Too clayey	0.12		
		Depth to saturated zone	0.28	Cutbanks cave	0.10		
116:							
McAlpin, high precipitation	90	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.28
		Low strength	1.00	Too clayey	0.12		
		Depth to saturated zone	0.28	Cutbanks cave	0.10		
117:							
McAlpin, rarely flooded	81	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.35
		Shrink-swell	1.00	Too clayey	0.18		
		Flooding	0.40	Cutbanks cave	0.10		
		Depth to saturated zone	0.35				
118:							
McBee	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.01				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119:							
McBee, nonflooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.01				
120:							
Meda	40	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63		
Treharne	25	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.48				
Wasson	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
121:							
Mulkey	85	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.80
		Depth to hard bedrock	0.79	Slope	0.63	Slope	0.63
		Slope	0.63	Cutbanks cave	0.10	Large stones content	0.01
122:							
Mulkey	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Frost action	1.00	Slope	1.00	Depth to bedrock	0.80
		Depth to hard bedrock	0.79	Cutbanks cave	0.10	Large stones content	0.01
123:							
Murtip	45	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		
Giveout	25	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63	Depth to bedrock	0.06
				Depth to soft bedrock	0.06		
Laderly	20	Somewhat limited		Very limited		Somewhat limited	
		Large stones content	0.95	Depth to hard bedrock	1.00	Slope	0.63
		Slope	0.63	Large stones content	0.95	Depth to bedrock	0.03
		Frost action	0.50	Slope	0.63		
		Depth to hard bedrock	0.03	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
124:							
Nekoma	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80		
				Depth to saturated zone	0.61		
Fluvaquents	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
				Flooding	0.80		
125:							
Newberg	92	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
126:							
Newberg, high precipitation	95	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
127:							
Newberg	92	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
128:							
Oldblue	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Frost action	0.50	Cutbanks cave	0.10		
Burntwoods	35	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		
		Large stones content	0.20	Large stones content	0.20		
129:							
Panther	81	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00		
		Low strength	1.00	Cutbanks cave	0.10		
130:							
Pengra	83	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00		
		Low strength	1.00	Cutbanks cave	0.10		
131:							
Philomath	76	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.86
		Shrink-swell	1.00				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
132:							
Pilchuck	79	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80		
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Low strength	0.22				
Blachly	30	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.32		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Bohannon	20	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63	Depth to bedrock	0.16
				Depth to soft bedrock	0.15		
135:							
Preacher	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Low strength	0.22				
Bohannon	30	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63	Depth to bedrock	0.16
				Depth to soft bedrock	0.15		
136:							
Preacher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Low strength	0.22				
Bohannon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Depth to bedrock	0.16
				Depth to soft bedrock	0.15		
Slickrock	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00		
137:							
Price	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.78	Too clayey	0.50		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
137:							
MacDunn	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Large stones content	0.25		
		Large stones content	0.25	Too clayey	0.12		
				Cutbanks cave	0.10		
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to hard bedrock	0.01	Too clayey	0.08		
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Cutbanks cave	1.00	Large stones content	0.01
140:							
Santiam	91	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.35
		Shrink-swell	1.00	Too clayey	0.12		
		Depth to saturated zone	0.35	Cutbanks cave	0.10		
141:							
Santiam	93	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.96
		Shrink-swell	1.00	Slope	0.96	Depth to saturated zone	0.35
		Slope	0.96	Too clayey	0.12		
		Depth to saturated zone	0.35	Cutbanks cave	0.10		
142:							
Sevencedars	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	1.00	Slope	1.00	Depth to bedrock	0.20
		Frost action	0.50	Large stones content	1.00		
		Depth to hard bedrock	0.20	Cutbanks cave	0.10		
143:							
Sevencedars	35	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
143:							
Newanna-------------	30	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Depth to hard bedrock	1.00	Slope	0.63
		Slope	0.63	Large stones content	1.00	Depth to bedrock	0.20
		Frost action	0.50	Slope	0.63		
		Depth to hard bedrock	0.20	Cutbanks cave	0.10		
Woodspoint----------	25	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Cutbanks cave	1.00	Slope	0.63
		Slope	0.63	Depth to hard bedrock	0.77		
				Slope	0.63		
144:							
Sevencedars---------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00		
Newanna-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	1.00	Slope	1.00	Depth to bedrock	0.20
		Frost action	0.50	Large stones content	1.00		
		Depth to hard bedrock	0.20	Cutbanks cave	0.10		
Woodspoint----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	1.00		
				Depth to hard bedrock	0.77		
145:							
Shivigny------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	1.00	Droughty	0.57
		Large stones content	0.05	Too clayey	0.24		
				Large stones content	0.05		
Honeygrove, basalt bedrock------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Shrink-swell	0.50	Cutbanks cave	0.10		
146:							
Slickrock-----------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63		
147:							
Steiwer-------------	49	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
147:							
Chehulpum	41	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	0.99
148:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Cutbanks cave	0.10		
Chehulpum	40	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10	Droughty	0.99
149:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	0.50	Cutbanks cave	0.10		
Chehulpum	39	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	0.99
150:							
Treharne	35	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.48				
Eilertsen	30	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.73		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Zyzzug	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
		Flooding	0.40				
151:							
Valsetz	55	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Depth to hard bedrock	1.00	Slope	0.63
		Slope	0.63	Large stones content	1.00	Depth to bedrock	0.10
		Frost action	0.50	Slope	0.63		
		Depth to hard bedrock	0.10	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
151:							
Yellowstone----------	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Droughty	0.34
		Frost action	0.50				
152:							
Valsetz--------------	65	Very limited		Very limited		Very limited	
		Large stones content	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Large stones content	1.00	Depth to bedrock	0.10
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.10	Cutbanks cave	0.10		
Yellowstone----------	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Droughty	0.34
		Frost action	0.50				
153:							
Valsetz--------------	65	Very limited		Very limited		Very limited	
		Large stones content	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Large stones content	1.00	Depth to bedrock	0.10
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.10	Cutbanks cave	0.10		
Yellowstone----------	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Droughty	0.34
		Frost action	0.50				
154:							
Verboort-------------	97	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Too clayey	0.50		
		Low strength	1.00	Cutbanks cave	0.10		
155:							
Waldo----------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Too clayey	0.82	Flooding	0.60
		Shrink-swell	1.00	Flooding	0.60		
		Ponding	1.00	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
156:							
Waldo, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Too clayey	0.82	Flooding	0.60
		Shrink-swell	1.00	Flooding	0.60		
		Ponding	1.00	Cutbanks cave	0.10		
157:							
Wapato	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Flooding	0.60	Flooding	0.60
		Ponding	1.00	Too clayey	0.12		
		Shrink-swell	0.01	Cutbanks cave	0.10		
158:							
Wapato, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Flooding	0.60	Flooding	0.60
		Ponding	1.00	Too clayey	0.12		
		Shrink-swell	0.50	Cutbanks cave	0.10		
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
Willakenzie	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
161:							
Wellsdale	54	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
Willakenzie	33	Not limited		Somewhat limited		Somewhat limited	
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
161:							
Dupee	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
162:							
Wellsdale, north slopes	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
Willakenzie, north slopes	27	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
Dupee, north slopes	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.12		
		Slope	1.00	Cutbanks cave	0.10		
163:							
Willakenzie	83	Not limited		Somewhat limited		Somewhat limited	
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
164:							
Willakenzie	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
165:							
Willakenzie	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
166:							
Willakenzie	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
167:							
Willakenzie, south slopes	78	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
Wellsdale, south slopes	15	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
168:							
Willakenzie	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.29	Depth to bedrock	0.29
				Cutbanks cave	0.10		
Wellsdale	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
169:							
Willamette	95	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.22	Cutbanks cave	0.10		
170:							
Willamette	84	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.22	Cutbanks cave	0.10		
171:							
Willamette	97	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.22	Cutbanks cave	0.10		
172:							
Witham	79	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	0.88		
		Low strength	1.00	Cutbanks cave	0.10		
173:							
Witham	75	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.88		
		Slope	1.00	Cutbanks cave	0.10		

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
174:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Large stones content	1.00	Large stones content	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	1.00
Ritner	44	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to hard bedrock	0.01	Too clayey	0.08		
175:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Droughty	1.00
				Cutbanks cave	0.10	Slope	1.00
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to hard bedrock	0.01	Too clayey	0.08		
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Large stones content	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	1.00
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to hard bedrock	0.01	Too clayey	0.08		
177:							
Woodburn	92	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.12
		Depth to saturated zone	0.12	Cutbanks cave	0.10		
		Shrink-swell	0.01				
178:							
Woodburn	92	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.12
		Depth to saturated zone	0.12	Cutbanks cave	0.10		
		Shrink-swell	0.01				

Table 16.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
179:							
Woodburn	94	Very limited		Very limited		Very limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to saturated zone	0.12
		Depth to saturated zone	0.12	Cutbanks cave	0.10		
		Shrink-swell	0.01				
180:							
Woodburn	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.12
		Depth to saturated zone	0.12	Cutbanks cave	0.10		
		Shrink-swell	0.01				

Table 17.--Sewage Disposal

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1:					
Abiqua	89	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
2:					
Abiqua	84	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
				Slope	0.32
3:					
Abiqua, high precipitation	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
4:					
Abiqua, high precipitation	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
				Slope	0.32
5:					
Abiqua, rarely flooded	86	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
				Flooding	0.40
		Flooding	0.40		
6:					
Alsea	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
				Slope	0.08
		Slow water movement	0.92		
7:					
Alsea, rarely flooded	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
				Flooding	0.40
		Slow water movement	0.92		
		Flooding	0.40		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
8:					
Amity	94	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
9:					
Apt	55	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
McDuff	30	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63	Seepage	0.08
10:					
Apt	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
McDuff	30	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	0.08
11:					
Aquents	97	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.08
12:					
Awbrig	87	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Flooding	0.40
		Flooding	0.40		
13:					
Bashaw, nonflooded	89	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
14:					
Bashaw, flooded	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
15:					
Bashaw, nonflooded	87	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
16:					
Bashaw, nonflooded	87	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
17:					
Bellpine	68	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
Jory, sedimentary bedrock	24	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
18:					
Bellpine	51	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Jory, sedimentary bedrock	42	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
		Slope	1.00		
19:					
Bellpine	52	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
19:					
Jory, sedimentary bedrock	43	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
20:					
Bellpine	55	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
Jory, sedimentary bedrock	42	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
21:					
Blachly	50	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
		Slope	0.63		
Kilowan	40	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63		
22:					
Blachly	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
Kilowan	40	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
23:					
Bohannon	50	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.50
Preacher	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.92
		Depth to bedrock	0.63	Depth to soft bedrock	0.18

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
24:					
Bohannon	50	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.50
Preacher	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.92
		Depth to bedrock	0.63	Depth to soft bedrock	0.18
25:					
Briedwell	84	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
				Slope	0.08
26:					
Briedwell	94	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
27:					
Burntwoods	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
		Large stones content	0.20	Large stones content	0.93
		Depth to bedrock	0.04		
Oldblue	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	0.98
28:					
Camas	87	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage/bottom layer	1.00		
29:					
Camas, rarely flooded	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Flooding	0.40
		Flooding	0.40		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
30:					
Caterl	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	1.00
		Depth to bedrock	0.52	Depth to hard bedrock	0.08
		Large stones content	0.19	Large stones content	0.01
Laderly	30	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.95	Seepage	1.00
		Slow water movement	0.82	Large stones content	0.06
Romanose	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Large stones content	0.99	Large stones content	1.00
31:					
Caterl	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	1.00
		Depth to bedrock	0.52	Depth to hard bedrock	0.08
		Large stones content	0.19	Large stones content	0.01
Laderly	30	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.95	Seepage	1.00
		Slow water movement	0.82	Large stones content	0.06
Romanose	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Large stones content	0.99	Large stones content	1.00
32:					
Caterl	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	1.00
		Depth to bedrock	0.52	Depth to hard bedrock	0.08
		Large stones content	0.19	Large stones content	0.01

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
32:					
Murtip	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.47	Seepage	1.00
		Slow water movement	0.32	Depth to soft bedrock	0.05
Giveout	25	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
33:					
Caterl	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	1.00
		Depth to bedrock	0.52	Depth to hard bedrock	0.08
		Large stones content	0.19	Large stones content	0.01
Murtip	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.47	Seepage	1.00
		Slow water movement	0.32	Depth to soft bedrock	0.05
Laderly	20	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.95	Seepage	1.00
		Slow water movement	0.82	Large stones content	0.06
34:					
Chapman	92	Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Flooding	0.40
		Flooding	0.40		
35:					
Chapman, high precipitation	95	Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Flooding	0.40
		Flooding	0.40		
36:					
Chehalem	91	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
37:					
Chehalem	92	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.50
38:					
Chehalis	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
39:					
Chehalis, high precipitation	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
40:					
Chehalis	92	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
41:					
Chintimini	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Depth to soft bedrock	0.71
		Depth to bedrock	0.89	Seepage	0.68
		Large stones content	0.03	Depth to hard bedrock	0.32
				Large stones content	0.07
Blodgett	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00
		Large stones content	0.29	Slope	1.00
				Seepage	0.68
				Large stones content	0.60

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
42:					
Chintimini----------	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Depth to soft bedrock	0.71
		Depth to bedrock	0.89	Seepage	0.68
		Large stones content	0.03	Depth to hard bedrock	0.32
				Large stones content	0.07
Blodgett------------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
		Large stones content	0.29	Depth to soft bedrock	1.00
				Slope	1.00
				Seepage	0.68
				Large stones content	0.60
Fiverivers----------	20	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.68	Slope	1.00
				Seepage	0.68
43:					
Chintimini----------	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Depth to soft bedrock	0.71
		Depth to bedrock	0.89	Seepage	0.68
		Large stones content	0.03	Depth to hard bedrock	0.32
				Large stones content	0.07
Grassmountain-------	45	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
				Seepage	0.68
		Slope	0.63		
		Depth to bedrock	0.01		
44:					
Chismore------------	55	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.02
Pyburn--------------	30	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
45:					
Chismore	60	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Seepage	0.02
Pyburn	25	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Slope	0.68
46:					
Cloquato	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
47:					
Cloquato, high precipitation	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
48:					
Coburg, occasionally flooded	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
Coburg, rarely flooded	44	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
		Flooding	0.40	Flooding	0.40
49:					
Coburg	88	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	1.00
		Seepage/bottom layer	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
50:					
Coburg, rarely flooded	89	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
		Flooding	0.40	Flooding	0.40
51:					
Concord	92	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Seepage	0.50
52:					
Conser	86	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Ponding	1.00
		Ponding	1.00	Flooding	0.40
		Flooding	0.40		
53:					
Dayton	93	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Seepage	0.50
54:					
Dayton, clay substratum	92	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Seepage	0.50
55:					
Digger	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.92	Slope	1.00
		Slope	0.63	Large stones content	0.99
		Large stones content	0.32	Seepage	0.68
				Depth to hard bedrock	0.61

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
55:					
Bohannon	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.98	Slope	1.00
		Slope	0.63	Seepage	0.50
56:					
Digger	40	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.92	Large stones content	0.99
		Large stones content	0.32	Seepage	0.68
				Depth to hard bedrock	0.61
Remote	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	0.68
Umpcoos	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	0.68	Large stones content	0.96
				Seepage	0.50
57:					
Digger	40	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.92	Large stones content	0.99
		Large stones content	0.32	Seepage	0.68
				Depth to hard bedrock	0.61
Umpcoos	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	0.68	Large stones content	0.96
				Seepage	0.50
Remote	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	0.68

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
58:					
Dixonville	46	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Gellatly	43	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
		Depth to bedrock	0.22		
59:					
Dixonville	55	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00		
Gellatly	33	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
		Depth to bedrock	0.22		
60:					
Dixonville	34	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
Gellatly	28	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	0.22		
Witham	20	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
61:					
Dupee	86	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	1.00
62:					
Dupee	87	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Slope	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
63:					
Elsie	80	Somewhat limited		Somewhat limited	
		Slow water movement	0.92	Seepage	0.68
				Slope	0.32
64:					
Elsie	85	Somewhat limited		Very limited	
		Slow water movement	0.92	Slope	1.00
		Slope	0.37	Seepage	0.68
65:					
Fiverivers	35	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	0.68
Grassmountain	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.68
		Depth to bedrock	0.01		
Chintimini	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Depth to soft bedrock	0.71
		Depth to bedrock	0.89	Seepage	0.68
		Large stones content	0.03	Depth to hard bedrock	0.32
				Large stones content	0.07
66:					
Fluvents	53	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
Fluvaquents	37	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
67:					
Fluvents, high precipitation	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
67:					
Fluvaquents, high precipitation------	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
68:					
Formader------------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.82	Slope	1.00
		Slope	0.63	Seepage	0.92
Hemcross------------	35	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
				Seepage	0.50
		Slope	0.63		
69:					
Formader------------	50	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.82	Slope	1.00
				Seepage	0.92
Hemcross------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.50
70:					
Formader------------	35	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.82	Slope	1.00
				Seepage	0.92
Klistan-------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Seepage	1.00
				Depth to hard bedrock	0.05
		Depth to bedrock	0.47		
		Large stones content	0.16		
Hemcross------------	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
71:					
Gelderman	47	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
Jory, basalt bedrock	42	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.27
72:					
Goodin	30	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
Dupee	21	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	1.00
Chehulpum	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Slope	1.00
73:					
Goodin	31	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Chehulpum	21	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Dupee	21	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Slope	1.00		
74:					
Grassmountain	40	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
		Slope	0.63	Seepage	0.68
		Depth to bedrock	0.01		
Fiverivers	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.68	Slope	1.00
		Slope	0.63	Seepage	0.68

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
74:					
Chintimini----------	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Depth to soft bedrock	0.71
		Depth to bedrock	0.89	Seepage	0.68
		Large stones content	0.03	Depth to hard bedrock	0.32
				Large stones content	0.07
75:					
Harslow-------------	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	0.92
		Large stones content	0.46	Large stones content	0.01
Kilchis-------------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Large stones content	0.96	Large stones content	1.00
Rock outcrop--------	15	Not rated		Not rated	
76:					
Harslow-------------	35	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	0.92
		Large stones content	0.46	Large stones content	0.01
Klistan-------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Seepage	1.00
		Depth to bedrock	0.47	Depth to hard bedrock	0.05
		Large stones content	0.16		
Rock outcrop--------	20	Not rated		Not rated	
77:					
Hazelair------------	81	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Slope	1.00

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
78:					
Hazelair	81	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to saturated zone	1.00
		Slope	1.00		
79:					
Hazelair	81	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00		
80:					
Hazelair	82	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to saturated zone	1.00
		Slope	0.96		
81:					
Helmick	86	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
82:					
Helvetia	94	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.71
		Depth to saturated zone	0.99	Slope	0.68
				Seepage	0.27
83:					
Hemcross	55	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
		Slope	0.63	Seepage	0.50
Klistan	35	Somewhat limited		Very limited	
		Slow water movement	0.92	Seepage	1.00
		Slope	0.63	Slope	1.00
		Depth to bedrock	0.47	Depth to hard bedrock	0.05
		Large stones content	0.16		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
84:					
Hemcross	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.50
Klistan	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Seepage	1.00
		Depth to bedrock	0.47	Depth to hard bedrock	0.05
		Large stones content	0.16		
85:					
Holcomb	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
86:					
Honeygrove	50	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
Peavine, sedimentary bedrock	40	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63		
87:					
Honeygrove	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
Peavine, sedimentary bedrock	35	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
88:					
Honeygrove, basalt bedrock	50	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
Peavine, basalt bedrock	35	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
89:					
Honeygrove, basalt bedrock	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
Peavine, basalt bedrock	40	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
90:					
Honeygrove, basalt bedrock	55	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
Shivigny	30	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
		Large stones content	0.05		
		Depth to bedrock	0.02		
91:					
Jory, basalt bedrock	86	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.27
92:					
Jory, basalt bedrock	86	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.27
		Slope	1.00		
93:					
Jory, basalt bedrock	84	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.27
94:					
Jory, sedimentary bedrock	81	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
95:					
Jory, sedimentary bedrock	81	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
		Slope	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
96:					
Jory, sedimentary bedrock	86	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
97:					
Jory, sedimentary bedrock	72	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
Dupee	22	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	1.00
98:					
Jory, basalt bedrock	57	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	0.27
Gelderman	20	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
99:					
Jory, basalt bedrock	55	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	0.27
Nekia	32	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Seepage	0.50
100:					
Jory, basalt bedrock	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.27
Nekia	32	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
101:					
Kirkendall	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.32
Nekoma	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
Quosatana	15	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
102:					
Klistan	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.92	Seepage	1.00
				Depth to hard bedrock	0.05
		Depth to bedrock	0.47		
		Large stones content	0.16		
Harslow	30	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.82	Slope	1.00
				Seepage	0.92
		Large stones content	0.46	Large stones content	0.01
103:					
Klistan	40	Somewhat limited		Very limited	
		Slow water movement	0.92	Seepage	1.00
				Slope	1.00
		Slope	0.63	Depth to hard bedrock	0.05
		Depth to bedrock	0.47		
		Large stones content	0.16		
Harslow	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.82		
				Slope	1.00
		Slope	0.63	Seepage	0.92
		Large stones content	0.46	Large stones content	0.01
Hemcross	20	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
				Seepage	0.50
		Slope	0.63		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
104:					
Laderly	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.95	Seepage	1.00
		Slow water movement	0.82	Slope	1.00
		Slope	0.63	Large stones content	0.06
Murtip	30	Somewhat limited		Very limited	
		Slope	0.63	Seepage	1.00
		Depth to bedrock	0.47	Slope	1.00
		Slow water movement	0.32	Depth to soft bedrock	0.05
Giveout	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
105:					
Linslaw	91	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Flooding	0.40
		Flooding	0.40		
106:					
Linslaw	92	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Slope	0.68
		Flooding	0.40	Flooding	0.40
107:					
Lurnick	60	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
				Depth to hard bedrock	0.99
Luckiamute	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
				Seepage	0.92

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
108:					
Lurnick	40	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
				Depth to hard bedrock	0.99
Luckiamute	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
				Seepage	0.92
Maryspeak	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
109:					
MacDunn	44	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
		Depth to bedrock	0.73	Depth to soft bedrock	0.32
		Large stones content	0.25		
Price	28	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
Ritner	20	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
110:					
Malabon	89	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
111:					
Malabon, rarely flooded	89	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Flooding	0.40
		Flooding	0.40		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
112:					
Maryspeak	90	Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00
		Slope	0.63	Slope	1.00
113:					
McAlpin	82	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
114:					
McAlpin	84	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
				Slope	0.32
115:					
McAlpin, high precipitation	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
116:					
McAlpin, high precipitation	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
				Slope	0.32
117:					
McAlpin, rarely flooded	81	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
		Flooding	0.40	Flooding	0.40
118:					
McBee	92	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
119:					
McBee, nonflooded	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
120:					
Meda	40	Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	0.92	Slope	1.00
		Slope	0.63		
Treharne	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.82
				Slope	0.08
Wasson	15	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
121:					
Mulkey	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slope	0.63	Slope	1.00
				Organic matter content	1.00
122:					
Mulkey	85	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
123:					
Murtip	45	Somewhat limited		Very limited	
		Slope	0.63	Seepage	1.00
		Depth to bedrock	0.47	Slope	1.00
		Slow water movement	0.32	Depth to soft bedrock	0.05
Giveout	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
Laderly	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	0.95	Seepage	1.00
		Slow water movement	0.82	Slope	1.00
		Slope	0.63	Large stones content	0.06

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
124:					
Nekoma	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
Fluvaquents	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
125:					
Newberg	92	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
126:					
Newberg, high precipitation	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
127:					
Newberg	92	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
128:					
Oldblue	55	Somewhat limited		Very limited	
		Slow water movement	0.68	Slope	1.00
		Slope	0.63	Seepage	0.98
Burntwoods	35	Somewhat limited		Very limited	
		Slope	0.63	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
		Large stones content	0.20	Large stones content	0.93
		Depth to bedrock	0.04		
129:					
Panther	81	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92
		Depth to bedrock	0.96	Depth to soft bedrock	0.88

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
130:					
Pengra	83	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
131:					
Philomath	76	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Slope	1.00
132:					
Pilchuck	79	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage/bottom layer	1.00		
133:					
Pits	100	Not rated		Not rated	
134:					
Preacher	40	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
				Seepage	0.92
		Depth to bedrock	0.63	Depth to soft bedrock	0.18
		Slope	0.63		
Blachly	30	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
		Slope	0.63		
Bohannon	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.98		
				Slope	1.00
		Slope	0.63	Seepage	0.50
135:					
Preacher	50	Somewhat limited		Very limited	
		Slow water movement	0.98	Slope	1.00
				Seepage	0.92
		Depth to bedrock	0.63	Depth to soft bedrock	0.18
		Slope	0.63		
Bohannon	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.98		
				Slope	1.00
		Slope	0.63	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
136:					
Preacher	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.92
		Depth to bedrock	0.63	Depth to soft bedrock	0.18
Bohannon	30	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.98	Seepage	0.50
Slickrock	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
137:					
Price	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
MacDunn	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
		Depth to bedrock	0.73	Depth to soft bedrock	0.32
		Large stones content	0.25		
Ritner	20	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
138:					
Riverwash	100	Not rated		Not rated	
139:					
Salem	91	Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00
		Slow water movement	1.00		
140:					
Santiam	91	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.68
				Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
141:					
Santiam	93	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.96	Seepage	0.50
142:					
Sevencedars	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.32	Seepage	1.00
				Large stones content	0.01
Newanna	30	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	1.00	Seepage	1.00
		Slow water movement	0.32	Large stones content	1.00
143:					
Sevencedars	35	Somewhat limited		Very limited	
		Slope	0.63	Seepage	1.00
		Slow water movement	0.32	Slope	1.00
				Large stones content	0.01
Newanna	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Seepage	1.00
		Slope	0.63	Large stones content	1.00
		Slow water movement	0.32	Slope	1.00
Woodspoint	25	Somewhat limited		Very limited	
		Depth to bedrock	0.91	Seepage	1.00
		Slope	0.63	Slope	1.00
		Slow water movement	0.32	Depth to hard bedrock	0.77
144:					
Sevencedars	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.32	Seepage	1.00
				Large stones content	0.01
Newanna	20	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Large stones content	1.00	Seepage	1.00
		Slow water movement	0.32	Large stones content	1.00

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
144:					
Woodspoint----------	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.91	Seepage	1.00
		Slow water movement	0.32	Depth to hard bedrock	0.77
145:					
Shivigny-----------	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
		Large stones content	0.05		
		Depth to bedrock	0.02		
Honeygrove, basalt bedrock-----------	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
146:					
Slickrock-----------	90	Somewhat limited		Very limited	
		Slope	0.63	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
147:					
Steiwer------------	49	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
				Seepage	0.50
Chehulpum-----------	41	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Slope	1.00
148:					
Steiwer------------	50	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Seepage	0.50
Chehulpum-----------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00		
				Slope	1.00
149:					
Steiwer------------	50	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
149:					
Chehulpum	39	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
150:					
Treharne	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.82
Eilertsen	30	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.92
		Slow water movement	0.98	Seepage	0.68
				Slope	0.32
Zyzzug	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	0.40
		Flooding	0.40	Seepage	0.32
151:					
Valsetz	55	Very limited		Very limited	
		Large stones content	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slope	0.63	Slope	1.00
Yellowstone	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
		Slope	0.63	Slope	1.00
152:					
Valsetz	65	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Slope	1.00
		Depth to bedrock	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
Yellowstone	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
153:					
Valsetz	65	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Slope	1.00
		Depth to bedrock	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
Yellowstone	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
		Seepage/bottom layer	1.00	Seepage	1.00
154:					
Verboort	97	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
155:					
Waldo	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
156:					
Waldo, high precipitation	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
157:					
Wapato	89	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Seepage	0.50

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
158:					
Wapato, high precipitation	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Seepage	0.50
159:					
Water	100	Not rated		Not rated	
160:					
Wellsdale	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Willakenzie	33	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
161:					
Wellsdale	54	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	1.00
Willakenzie	33	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
Dupee	10	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	0.68
162:					
Wellsdale, north slopes	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Slope	1.00		
Willakenzie, north slopes	27	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
162:					
Dupee, north slopes	10	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Slope	1.00		
163:					
Willakenzie---------	83	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
164:					
Willakenzie---------	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
165:					
Willakenzie---------	86	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
166:					
Willakenzie---------	79	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		
167:					
Willakenzie, south slopes-------------	78	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Wellsdale, south slopes-------------	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Slope	1.00		
168:					
Willakenzie---------	79	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	1.00		

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
168:					
Wellsdale	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
169:					
Willamette	95	Somewhat limited		Somewhat limited	
		Slow water movement	0.72	Seepage	0.50
170:					
Willamette	84	Somewhat limited		Very limited	
		Slow water movement	0.72	Slope	1.00
				Seepage	0.50
171:					
Willamette	97	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.72	Seepage	0.50
172:					
Witham	79	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
173:					
Witham	75	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00		
174:					
Witzel	46	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00
				Slope	1.00
Ritner	44	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00	Slope	1.00
				Seepage	0.50
175:					
Witzel	46	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00

Table 17.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
175:					
Ritner	44	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
176:					
Witzel	46	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00
Ritner	44	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
177:					
Woodburn	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	0.50
		Slow water movement	0.72		
178:					
Woodburn	92	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Slope	1.00
		Slow water movement	0.72	Seepage	0.50
179:					
Woodburn	94	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	0.50
		Slow water movement	0.72		
180:					
Woodburn	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Seepage	0.50
		Slow water movement	0.72		

Table 18.--Landfills

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
1:							
Abiqua	89	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
2:							
Abiqua	84	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
3:							
Abiqua, high precipitation	90	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
4:							
Abiqua, high precipitation	95	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
5:							
Abiqua, rarely flooded	86	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Flooding	0.40				
6:							
Alsea	95	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.20
		Seepage/bottom layer	1.00				
7:							
Alsea, rarely flooded	95	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.20
		Seepage/bottom layer	1.00	Flooding	0.40		
		Flooding	0.40				
8:							
Amity	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
9:							
Apt	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too clayey	1.00
		Too clayey	0.50			Slope	0.63
McDuff	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Slope	0.63			Slope	0.63

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
10:							
Apt	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	1.00
McDuff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00			Too clayey	1.00
11:							
Aquents	97	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
12:							
Awbrig	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
13:							
Bashaw, nonflooded	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
14:							
Bashaw, flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Ponding	1.00	Hard to compact	1.00
		Ponding	1.00			Ponding	1.00
15:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00			Hard to compact	1.00
						Ponding	1.00
16:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00			Hard to compact	1.00
						Ponding	1.00
17:							
Bellpine	68	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
17:							
Jory, sedimentary bedrock	24	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
18:							
Bellpine	51	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Hard to compact	1.00
		Slope	1.00			Depth to bedrock	1.00
						Slope	1.00
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
19:							
Bellpine	52	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
Jory, sedimentary bedrock	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
20:							
Bellpine	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
21:							
Blachly	50	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Slope	0.63			Slope	0.63
Kilowan	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Depth to bedrock	1.00
		Slope	0.63			Slope	0.63
22:							
Blachly	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
22:							
Kilowan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
23:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Gravel content	0.34
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.18	Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.18
24:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Gravel content	0.34
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.18	Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.18
25:							
Briedwell	84	Somewhat limited		Not limited		Very limited	
		Too clayey	0.50			Gravel content	1.00
						Too clayey	0.50
26:							
Briedwell	94	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Gravel content	1.00
		Too clayey	0.50			Slope	0.96
						Too clayey	0.50
27:							
Burntwoods	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Gravel content	0.91
		Large stones content	0.11			Large stones content	0.11
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Too clayey	0.50
		Too clayey	0.50				
28:							
Camas	87	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Gravel content	0.99

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
29:							
Camas, rarely flooded	90	Very limited		Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40			Gravel content	1.00
		Large stones content	0.01			Large stones content	0.01
30:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.08	Large stones content	0.95
		Large stones content	0.95			Gravel content	0.37
						Depth to bedrock	0.08
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.95			Large stones content	0.95
						Gravel content	0.36
Romanose	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage/bottom layer	1.00			Large stones	1.00
						Gravel content	0.16
		Large stones	1.00			Seepage	0.01
31:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.08	Large stones content	0.95
		Large stones content	0.95			Gravel content	0.37
						Depth to bedrock	0.08
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.95			Large stones content	0.95
						Gravel content	0.36
Romanose	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage/bottom layer	1.00			Large stones	1.00
						Gravel content	0.16
		Large stones	1.00			Seepage	0.01

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
32:							
Caterl	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.08	Large stones content	0.95
		Large stones content	0.95			Gravel content	0.37
						Depth to bedrock	0.08
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Hard to compact	1.00
				Depth to bedrock	0.05	Depth to bedrock	0.05
Giveout	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Gravel content	0.80
33:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.08	Large stones content	0.95
		Large stones content	0.95			Gravel content	0.37
						Depth to bedrock	0.08
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Hard to compact	1.00
				Depth to bedrock	0.05	Depth to bedrock	0.05
Laderly	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.95			Large stones content	0.95
						Gravel content	0.36
34:							
Chapman	92	Very limited		Somewhat limited		Very limited	
		Seepage/bottom layer	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40				
35:							
Chapman, high precipitation	95	Very limited		Somewhat limited		Very limited	
		Seepage/bottom layer	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40				
36:							
Chehalem	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
37:							
Chehalem------------	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
38:							
Chehalis------------	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Seepage/bottom layer	1.00				
		Too clayey	0.50				
39:							
Chehalis, high precipitation------	95	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Seepage/bottom layer	1.00				
		Too clayey	0.50				
40:							
Chehalis------------	92	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Seepage/bottom layer	1.00				
		Too clayey	0.50				
41:							
Chintimini----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Depth to bedrock	0.71
		Too clayey	0.50			Too clayey	0.50
		Large stones content	0.01			Gravel content	0.17
						Large stones content	0.01
Blodgett------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.29			Gravel content	0.76
						Large stones content	0.29
42:							
Chintimini----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Depth to bedrock	0.71
		Too clayey	0.50			Too clayey	0.50
		Large stones content	0.01			Gravel content	0.17
						Large stones content	0.01
Blodgett------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.29			Gravel content	0.76
						Large stones content	0.29

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
42:							
Fiverivers	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.01
43:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Depth to bedrock	0.71
		Too clayey	0.50			Too clayey	0.50
		Large stones content	0.01			Gravel content	0.17
						Large stones content	0.01
Grassmountain	45	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Slope	0.63
		Slope	0.63			Too clayey	0.50
		Too clayey	0.50				
44:							
Chismore	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to saturated zone	0.93
Pyburn	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Too clayey	1.00
		Too clayey	0.50			Ponding	1.00
45:							
Chismore	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.01	Depth to saturated zone	0.93
		Slope	0.01			Slope	0.01
Pyburn	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Too clayey	1.00
		Too clayey	0.50			Ponding	1.00
46:							
Cloquato	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Seepage/bottom layer	1.00				
47:							
Cloquato, high precipitation	95	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Seepage/bottom layer	1.00				

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
48:							
Coburg, occasionally flooded	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too clayey	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	1.00				
Coburg, rarely flooded	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Flooding	0.40	Depth to saturated zone	0.86
		Flooding	0.40				
49:							
Coburg	88	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.62
		Seepage/bottom layer	1.00			Too clayey	0.50
		Too clayey	0.50				
50:							
Coburg, rarely flooded	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Flooding	0.40	Depth to saturated zone	0.86
		Flooding	0.40				
51:							
Concord	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
52:							
Conser	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Seepage/bottom layer	1.00	Flooding	0.40	Hard to compact	1.00
		Ponding	1.00			Ponding	1.00
		Flooding	0.40				
53:							
Dayton	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
54:							
Dayton, clay substratum	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00			Hard to compact	1.00
						Ponding	1.00
55:							
Digger	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Gravel content	0.69
		Large stones content	0.32			Slope	0.63
						Large stones content	0.32
Bohannon	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.34
56:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.32			Gravel content	0.69
						Large stones content	0.32
Remote	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.98
Umpcoos	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.68			Large stones content	0.68
						Gravel content	0.24
57:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.32			Gravel content	0.69
						Large stones content	0.32
Umpcoos	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones content	0.68			Large stones content	0.68
						Gravel content	0.24
Remote	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.98

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
58:							
Dixonville----------	46	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Hard to compact	1.00
		Slope	1.00			Depth to bedrock	1.00
						Slope	1.00
Gellatly------------	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Hard to compact	1.00
		Depth to bedrock	1.00			Slope	1.00
		Too clayey	0.50			Too clayey	0.50
59:							
Dixonville----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
Gellatly------------	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Hard to compact	1.00
		Too clayey	0.50			Too clayey	0.50
60:							
Dixonville----------	34	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
Gellatly------------	28	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Hard to compact	1.00
		Too clayey	0.50			Too clayey	0.50
Witham--------------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
61:							
Dupee---------------	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
62:							
Dupee---------------	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
63:							
Elsie---------------	80	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
64:							
Elsie	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37
65:							
Fiverivers	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.01
Grassmountain	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Too clayey	0.50
		Too clayey	0.50				
Chintimini	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Depth to bedrock	0.71
		Too clayey	0.50			Too clayey	0.50
		Large stones content	0.01			Gravel content	0.17
						Large stones content	0.01
66:							
Fluvents	53	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	1.00
						Gravel content	0.03
		Too sandy	1.00				
Fluvaquents	37	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.21
		Seepage/bottom layer	1.00	Seepage	1.00		
67:							
Fluvents, high precipitation	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	1.00
						Gravel content	0.03
		Too sandy	1.00				
Fluvaquents, high precipitation	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.21
		Seepage/bottom layer	1.00	Seepage	1.00		

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
68:							
Formader	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Gravel content	0.85
		Too clayey	0.50			Slope	0.63
						Too clayey	0.50
Hemcross	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Hard to compact	1.00
		Too clayey	0.50			Slope	0.63
						Too clayey	0.50
69:							
Formader	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Gravel content	0.85
						Too clayey	0.50
Hemcross	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Hard to compact	1.00
						Too clayey	0.50
70:							
Formader	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Gravel content	0.85
						Too clayey	0.50
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.05	Large stones content	0.68
		Large stones content	0.68			Gravel content	0.68
						Depth to bedrock	0.05
Hemcross	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Hard to compact	1.00
						Too clayey	0.50
71:							
Gelderman	47	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
Jory, basalt bedrock	42	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
72:							
Goodin	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
72:							
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
Chehulpum	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
73:							
Goodin	31	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
Chehulpum	21	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
74:							
Grassmountain	40	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Slope	0.63
		Slope	0.63			Too clayey	0.50
		Too clayey	0.50				
Fiverivers	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.01
Chintimini	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Depth to bedrock	0.71
		Too clayey	0.50			Too clayey	0.50
		Large stones content	0.01			Gravel content	0.17
						Large stones content	0.01
75:							
Harslow	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.46			Gravel content	0.95
						Large stones content	0.46
Kilchis	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage/bottom layer	1.00			Large stones content	0.96
		Large stones content	0.96			Seepage	0.63

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
75:							
Rock outcrop	15	Not rated		Very limited		Not rated	
				Slope	1.00		
				Depth to bedrock	1.00		
76:							
Harslow	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.46			Gravel content	0.95
						Large stones content	0.46
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.05	Large stones content	0.68
		Large stones content	0.68			Gravel content	0.68
						Depth to bedrock	0.05
Rock outcrop	20	Not rated		Very limited		Not rated	
				Slope	1.00		
				Depth to bedrock	1.00		
77:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
78:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
79:							
Hazelair	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
80:							
Hazelair	82	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.96	Hard to compact	1.00
		Slope	0.96			Depth to bedrock	1.00
						Slope	0.96

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81:							
Helmick	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
82:							
Helvetia	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
83:							
Hemcross	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Hard to compact	1.00
		Too clayey	0.50			Slope	0.63
						Too clayey	0.50
Klistan	35	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Large stones content	0.68
		Large stones content	0.68	Depth to bedrock	0.05	Gravel content	0.68
		Slope	0.63			Slope	0.63
						Depth to bedrock	0.05
84:							
Hemcross	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Hard to compact	1.00
						Too clayey	0.50
Klistan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.05	Large stones content	0.68
		Large stones content	0.68			Gravel content	0.68
						Depth to bedrock	0.05
85:							
Holcomb	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.99
86:							
Honeygrove	50	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Depth to bedrock	1.00			Slope	0.63
		Slope	0.63				
Peavine, sedimentary bedrock	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	1.00
						Slope	0.63

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
87:							
Honeygrove	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
		Depth to bedrock	1.00				
Peavine, sedimentary bedrock	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
88:							
Honeygrove, basalt bedrock	50	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Slope	0.63			Hard to compact	1.00
						Slope	0.63
Peavine, basalt bedrock	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	1.00
						Slope	0.63
89:							
Honeygrove, basalt bedrock	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Peavine, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
90:							
Honeygrove, basalt bedrock	55	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Slope	0.63			Hard to compact	1.00
						Slope	0.63
Shivigny	30	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Depth to bedrock	1.00			Gravel content	0.83
		Slope	0.63			Slope	0.63
		Large stones content	0.52			Large stones content	0.52
91:							
Jory, basalt bedrock	86	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
92:							
Jory, basalt bedrock	86	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
93:							
Jory, basalt bedrock	84	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
94:							
Jory, sedimentary bedrock	81	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
95:							
Jory, sedimentary bedrock	81	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
96:							
Jory, sedimentary bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
97:							
Jory, sedimentary bedrock	72	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Dupee	22	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
98:							
Jory, basalt bedrock	57	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
Gelderman	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
99:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
99:							
Nekia	32	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
100:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
101:							
Kirkendall	40	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.11
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Nekoma	30	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.31
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage/bottom layer	1.00	Seepage	1.00		
Quosatana	15	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
102:							
Klistan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.05	Large stones content	0.68
		Large stones content	0.68			Gravel content	0.68
						Depth to bedrock	0.05
Harslow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.46			Gravel content	0.95
						Large stones content	0.46
103:							
Klistan	40	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Large stones content	0.68
		Large stones content	0.68	Depth to bedrock	0.05	Gravel content	0.68
		Slope	0.63			Slope	0.63
						Depth to bedrock	0.05

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
103:							
Harslow	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Gravel content	0.95
		Large stones content	0.46			Slope	0.63
						Large stones content	0.46
Hemcross	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Hard to compact	1.00
		Too clayey	0.50			Slope	0.63
						Too clayey	0.50
104:							
Laderly	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.95	Slope	0.63	Large stones content	0.95
		Slope	0.63			Slope	0.63
						Gravel content	0.36
Murtip	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Hard to compact	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
				Depth to bedrock	0.05	Depth to bedrock	0.05
Giveout	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Gravel content	0.80
						Slope	0.63
105:							
Linslaw	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Flooding	0.40	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
		Flooding	0.40				
106:							
Linslaw	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage/bottom layer	1.00	Flooding	0.40	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
		Flooding	0.40				
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00	Seepage	1.00	Large stones	1.00
		Seepage/bottom layer	1.00			Seepage	0.01

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107:							
Luckiamute----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones	1.00			Large stones	1.00
108:							
Lurnick-------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00	Seepage	1.00	Large stones	1.00
		Seepage/bottom layer	1.00			Seepage	0.01
Luckiamute----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones	1.00			Large stones	1.00
Maryspeak-----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	0.99
						Gravel content	0.95
		Too sandy	0.50			Too sandy	0.50
109:							
MacDunn-------------	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.32	Too clayey	1.00
		Too clayey	1.00			Large stones content	0.74
		Large stones content	0.74				
						Depth to bedrock	0.32
Price---------------	28	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Ritner--------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
						Gravel content	0.21
110:							
Malabon-------------	89	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
111:							
Malabon, rarely flooded------------	89	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Seepage/bottom layer	1.00				
		Flooding	0.40				

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
112:							
Maryspeak	90	Very limited		Very limited		Somewhat limited	
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	0.99
				Slope	0.63	Gravel content	0.95
		Slope	0.63			Slope	0.63
		Too sandy	0.50			Too sandy	0.50
113:							
McAlpin	82	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Depth to saturated zone	0.91
		Too clayey	1.00				
114:							
McAlpin	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Depth to saturated zone	0.91
		Too clayey	1.00				
115:							
McAlpin, high precipitation	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Depth to saturated zone	0.91
		Too clayey	1.00				
116:							
McAlpin, high precipitation	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Depth to saturated zone	0.91
		Too clayey	1.00				
117:							
McAlpin, rarely flooded	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Depth to saturated zone	0.93
		Too clayey	1.00	Flooding	0.40		
		Flooding	0.40				
118:							
McBee	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
119:							
McBee, nonflooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
120:							
Meda	40	Very limited		Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	1.00
				Slope	0.63	Gravel content	0.66
		Slope	0.63			Slope	0.63

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
120:							
Treharne------------	25	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Too clayey	0.50			Too clayey	0.50
Wasson--------------	15	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.99
		Seepage/bottom layer	1.00	Seepage	1.00		
121:							
Mulkey--------------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Seepage	0.63
122:							
Mulkey--------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Seepage	0.63
123:							
Murtip--------------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Hard to compact	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
				Depth to bedrock	0.05	Depth to bedrock	0.05
Giveout-------------	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Gravel content	0.80
						Slope	0.63
Laderly-------------	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.95	Slope	0.63	Large stones content	0.95
		Slope	0.63			Slope	0.63
						Gravel content	0.36
124:							
Nekoma--------------	50	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.31
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage/bottom layer	1.00	Seepage	1.00		
Fluvaquents---------	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.21
		Seepage/bottom layer	1.00	Seepage	1.00		

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
125:							
Newberg------------	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Seepage	1.00		
126:							
Newberg, high precipitation------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Seepage	1.00		
127:							
Newberg------------	92	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Seepage	1.00		
128:							
Oldblue------------	55	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Slope	0.63
		Slope	0.63			Too clayey	0.50
		Too clayey	0.50				
Burntwoods----------	35	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Gravel content	0.91
		Slope	0.63			Slope	0.63
		Large stones content	0.11			Large stones content	0.11
129:							
Panther------------	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.88	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.88
130:							
Pengra-------------	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
131:							
Philomath----------	76	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
132:							
Pilchuck-----------	79	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage/bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50				

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
133:							
Pits	100	Not rated		Not rated		Not rated	
134:							
Preacher	40	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Depth to bedrock	0.18	Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.18
Blachly	30	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Slope	0.63			Slope	0.63
Bohannon	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.34
135:							
Preacher	50	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Depth to bedrock	0.18	Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.18
Bohannon	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.34
136:							
Preacher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.18	Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.18
Bohannon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Gravel content	0.34
Slickrock	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50	Seepage	1.00	Too clayey	0.50
						Gravel content	0.38
137:							
Price	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
MacDunn	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.32	Too clayey	1.00
		Too clayey	1.00			Large stones content	0.74
		Large stones content	0.74			Depth to bedrock	0.32

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
137:							
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
						Gravel content	0.21
138:							
Riverwash	100	Not rated		Very limited		Not rated	
				Flooding	1.00		
				Depth to saturated zone	1.00		
139:							
Salem	91	Very limited		Very limited		Very limited	
		Seepage/bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00			Gravel content	0.98
140:							
Santiam	91	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Hard to compact	1.00
		Too clayey	1.00			Depth to saturated zone	0.93
141:							
Santiam	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Hard to compact	1.00
		Too clayey	1.00	Slope	0.96	Slope	0.96
		Slope	0.96			Depth to saturated zone	0.93
142:							
Sevencedars	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.99
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00			Large stones	1.00
143:							
Sevencedars	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Gravel content	0.99
						Slope	0.63
Newanna	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00	Slope	0.63	Large stones	1.00
		Slope	0.63			Slope	0.63
Woodspoint	25	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.77	Depth to bedrock	0.77
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.08

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
144:							
Sevencedars	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.99
Newanna	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00			Large stones	1.00
Woodspoint	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.77	Depth to bedrock	0.77
						Gravel content	0.08
145:							
Shivigny	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
		Depth to bedrock	1.00			Gravel content	0.83
		Large stones content	0.52			Large stones content	0.52
Honeygrove, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
146:							
Slickrock	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Seepage	1.00	Slope	0.63
		Too clayey	0.50	Slope	0.63	Too clayey	0.50
						Gravel content	0.38
147:							
Steiwer	49	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Chehulpum	41	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
148:							
Steiwer	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
Chehulpum	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
149:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
149:							
Chehulpum	39	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
150:							
Treharne	35	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Too clayey	0.50			Too clayey	0.50
Eilertsen	30	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
Zyzzug	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
151:							
Valsetz	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Large stones	1.00
		Large stones	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage/bottom layer	1.00	Slope	0.63	Slope	0.63
		Slope	0.63			Seepage	0.01
Yellowstone	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00	Slope	0.63	Large stones	1.00
		Seepage/bottom layer	1.00			Slope	0.63
		Slope	0.63			Seepage	0.63
152:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Large stones	1.00
		Large stones	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage/bottom layer	1.00			Seepage	0.01
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones	1.00			Large stones	1.00
		Seepage/bottom layer	1.00			Seepage	0.63
153:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Large stones	1.00
		Large stones	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage/bottom layer	1.00			Seepage	0.01

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
153:							
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones	1.00			Large stones	1.00
		Seepage/bottom layer	1.00			Seepage	0.63
154:							
Verboort	97	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
155:							
Waldo	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Ponding	1.00	Hard to compact	1.00
		Ponding	1.00			Ponding	1.00
156:							
Waldo, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Ponding	1.00	Hard to compact	1.00
		Ponding	1.00			Ponding	1.00
157:							
Wapato	89	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00				
158:							
Wapato, high precipitation	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00				
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
160:							
Willakenzie	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
161:							
Wellsdale	54	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
Willakenzie	33	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Dupee	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
162:							
Wellsdale, north slopes	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
Willakenzie, north slopes	27	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
Dupee, north slopes	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
163:							
Willakenzie	83	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
164:							
Willakenzie	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
165:							
Willakenzie	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
166:							
Willakenzie----------	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
167:							
Willakenzie, south slopes-------------	78	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
Wellsdale, south slopes-------------	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
168:							
Willakenzie----------	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Wellsdale-----------	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
169:							
Willamette----------	95	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
170:							
Willamette----------	84	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
171:							
Willamette----------	97	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
172:							
Witham--------------	79	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
173:							
Witham--------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
174:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	1.00			Large stones	1.00
		Too clayey	0.50			Too clayey	0.50
Ritner	44	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
						Gravel content	0.21
175:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones	1.00			Large stones	1.00
		Too clayey	0.50			Too clayey	0.50
Ritner	44	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
						Gravel content	0.21
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Large stones	1.00			Large stones	1.00
		Too clayey	0.50			Too clayey	0.50
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to bedrock	1.00
						Gravel content	0.21
177:							
Woodburn	92	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.80
		Seepage/bottom layer	1.00				
178:							
Woodburn	92	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.80
		Seepage/bottom layer	1.00				
179:							
Woodburn	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to saturated zone	0.80
		Seepage/bottom layer	1.00				

Table 18.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
180:							
Woodburn------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.80
		Seepage/bottom layer	1.00				

Table 19.--Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
1:							
Abiqua	89	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slow water movement	0.37	Slow water movement	0.37
		Too acid	0.08	Too acid	0.31	Too acid	0.31
2:							
Abiqua	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slow water movement	0.37	Slow water movement	0.37
		Too acid	0.08	Too acid	0.31	Too acid	0.31
						Too steep for surface application	0.08
3:							
Abiqua, high precipitation	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slow water movement	0.37	Slow water movement	0.37
		Too acid	0.08	Too acid	0.31	Too acid	0.31
4:							
Abiqua, high precipitation	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slow water movement	0.37	Slow water movement	0.37
		Too acid	0.08	Too acid	0.31	Too acid	0.31
						Too steep for surface application	0.08
5:							
Abiqua, rarely flooded	86	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Flooding	0.40	Slow water movement	0.37
		Too acid	0.08	Slow water movement	0.37	Too acid	0.31
				Too acid	0.31		
6:							
Alsea	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.62	Depth to saturated zone	0.62	Depth to saturated zone	0.62
		Too acid	0.11	Too acid	0.42	Too acid	0.42
7:							
Alsea, rarely flooded	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.62	Depth to saturated zone	0.62	Depth to saturated zone	0.62
		Too acid	0.11	Too acid	0.42	Too acid	0.42
				Flooding	0.40		

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
8:							
Amity	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.42	Too acid	0.42
		Too acid	0.11	Slow water movement	0.37	Slow water movement	0.37
9:							
Apt	55	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Slow water movement	0.30	Slow water movement	0.22	Too steep for sprinkler application	0.78
						Slow water movement	0.22
McDuff	30	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.94	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Slow water movement	0.94
		Depth to bedrock	0.03	Depth to bedrock	0.03	Too steep for sprinkler application	0.78
10:							
Apt	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.30	Slow water movement	0.22	Filtering capacity	0.99
						Slow water movement	0.22

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
10:							
McDuff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.94	Filtering capacity	0.99
		Depth to bedrock	0.03	Depth to bedrock	0.03	Slow water movement	0.94
11:							
Aquents	97	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.42	Too acid	0.42
		Runoff	0.40	Slow water movement	0.37	Slow water movement	0.37
		Too acid	0.11				
12:							
Awbrig	87	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Strongly contrasting textural stratification	1.00	Strongly contrasting textural stratification	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Too acid	0.85
		Runoff	0.40	Too acid	0.85		
13:							
Bashaw, nonflooded	89	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Too acid	0.42	Too steep for surface application	0.68
		Too acid	0.11			Too acid	0.42
14:							
Bashaw, flooded	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Runoff	0.40	Too acid	0.42	Too acid	0.42

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
15:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Runoff	0.40	Too acid	0.42	Too acid	0.42
		Too acid	0.11				
16:							
Bashaw, nonflooded	87	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Runoff	0.40	Too acid	0.42	Too acid	0.42
		Too acid	0.11				
17:							
Bellpine	68	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for surface application	0.92
		Slow water movement	0.41	Too acid	0.67	Depth to bedrock	0.80
		Droughty	0.32	Droughty	0.32	Too acid	0.67
		Too acid	0.18	Slow water movement	0.31	Droughty	0.32
						Slow water movement	0.31
Jory, sedimentary bedrock	24	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too acid	0.67	Too steep for surface application	0.92
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
18:							
Bellpine	51	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for sprinkler application	1.00
		Slow water movement	0.41	Too acid	0.67	Depth to bedrock	0.80
		Droughty	0.32	Droughty	0.32	Too acid	0.67
		Too acid	0.18	Slow water movement	0.31	Droughty	0.32

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
18:							
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
19:							
Bellpine	52	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for sprinkler application	1.00
		Slow water movement	0.41	Too acid	0.67	Depth to bedrock	0.80
		Droughty	0.32	Droughty	0.32	Too acid	0.67
		Too acid	0.18	Slow water movement	0.31	Droughty	0.32
Jory, sedimentary bedrock	43	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
20:							
Bellpine	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for sprinkler application	1.00
		Slow water movement	0.41	Too acid	0.67	Depth to bedrock	0.80
		Droughty	0.32	Droughty	0.32	Too acid	0.67
		Too acid	0.18	Slow water movement	0.31	Droughty	0.32
Jory, sedimentary bedrock	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
21:							
Blachly	50	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.92	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Slow water movement	0.92
						Too steep for sprinkler application	0.78
Kilowan	40	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.35	Depth to bedrock	0.35	Too steep for sprinkler application	0.78
		Slow water movement	0.30	Slow water movement	0.22	Depth to bedrock	0.35
22:							
Blachly	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.92	Filtering capacity	0.99
						Slow water movement	0.92
Kilowan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.35	Depth to bedrock	0.35	Filtering capacity	0.99
		Slow water movement	0.30	Slow water movement	0.22	Depth to bedrock	0.35

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
23:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.16	Depth to bedrock	0.16	Filtering capacity	0.99
						Depth to bedrock	0.16
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
24:							
Bohannon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.16	Depth to bedrock	0.16	Filtering capacity	0.99
						Depth to bedrock	0.16
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
25:							
Briedwell	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.22	Too acid	0.77	Too acid	0.77

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
26:							
Briedwell	94	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Too acid	0.22	Too acid	0.77	Too steep for sprinkler application	0.98
						Too acid	0.77
27:							
Burntwoods	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78			Filtering capacity	0.99
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
28:							
Camas	87	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Strongly contrasting textural stratification	1.00	Flooding	1.00	Droughty	1.00
		Droughty	1.00	Strongly contrasting textural stratification	1.00	Flooding	0.60
		Flooding	0.60	Droughty	1.00	Too acid	0.03
		Leaching	0.45	Too acid	0.03		
29:							
Camas, rarely flooded	90	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Strongly contrasting textural stratification	1.00	Strongly contrasting textural stratification	1.00	Droughty	1.00
		Droughty	1.00	Droughty	1.00	Too acid	0.01
		Leaching	0.45	Flooding	0.40		
		Too acid	0.01	Too acid	0.01		

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
30:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.03	Depth to bedrock	0.03	Filtering capacity	0.99
						Depth to bedrock	0.03
Romanose	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Droughty	1.00	Too acid	1.00	Depth to bedrock	1.00
		Dense layer	1.00	Droughty	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Droughty	1.00
31:							
Caterl	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Laderly	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.03	Depth to bedrock	0.03	Filtering capacity	0.99
						Depth to bedrock	0.03

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
31:							
Romanose	25	Very limited Slope Depth to bedrock Droughty Dense layer Filtering capacity	 1.00 1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock Too acid Droughty Filtering capacity	 1.00 1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler application Depth to bedrock Too acid Droughty	 1.00 1.00 1.00 1.00 1.00
32:							
Caterl	35	Very limited Slope Filtering capacity Too acid	 1.00 0.99 0.78	Very limited Slope Too acid Filtering capacity	 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler application Too acid Filtering capacity	 1.00 1.00 1.00 0.99
Murtip	30	Very limited Slope Filtering capacity Too acid	 1.00 0.99 0.78	Very limited Slope Too acid Filtering capacity	 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler application Too acid Filtering capacity	 1.00 1.00 1.00 0.99
Giveout	25	Very limited Slope Filtering capacity Too acid Depth to bedrock	 1.00 0.99 0.78 0.06	Very limited Slope Too acid Filtering capacity Depth to bedrock	 1.00 1.00 0.99 0.06	Very limited Too steep for surface application Too steep for sprinkler application Too acid Filtering capacity Depth to bedrock	 1.00 1.00 1.00 0.99 0.06
33:							
Caterl	40	Very limited Slope Filtering capacity Too acid	 1.00 0.99 0.78	Very limited Slope Too acid Filtering capacity	 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler application Too acid Filtering capacity	 1.00 1.00 1.00 0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
33:							
Murtip	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Laderly	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.03	Depth to bedrock	0.03	Filtering capacity	0.99
						Depth to bedrock	0.03
34:							
Chapman	92	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.18	Too acid	0.67	Too acid	0.67
				Flooding	0.40		
35:							
Chapman, high precipitation	95	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.03	Flooding	0.40	Too acid	0.14
				Too acid	0.14		
36:							
Chehalem	91	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.18	Too acid	0.67	Too acid	0.67
37:							
Chehalem	92	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.18	Too acid	0.67	Too steep for surface application	0.92
						Too acid	0.67
						Too steep for sprinkler application	0.02

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
38:							
Chehalis	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.03	Too acid	0.14	Too acid	0.14
39:							
Chehalis, high precipitation	95	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.03	Too acid	0.14	Too acid	0.14
40:							
Chehalis	92	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.02	Too acid	0.07	Too acid	0.07
41:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Blodgett	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00	Too steep for surface application	1.00
		Droughty	1.00	Droughty	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Droughty	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
42:							
Chintimini	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
42:							
Blodgett	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00	Too steep for surface application	1.00
		Droughty	1.00	Droughty	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Droughty	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
Fiverivers	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.06	Depth to bedrock	0.06	Filtering capacity	0.99
						Depth to bedrock	0.06
43:							
Chintimini	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Grassmountain	45	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
44:							
Chismore	55	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Filtering capacity	0.99
		Runoff	0.40				

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
44:							
Pyburn	30	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Too acid	1.00	Too acid	1.00
		Too acid	0.73	Ponding	1.00	Ponding	1.00
		Runoff	0.40				
45:							
Chismore	60	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Runoff	0.40	Slope	0.01	Filtering capacity	0.99
Pyburn	25	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Too acid	1.00	Too acid	1.00
		Too acid	0.73	Ponding	1.00	Ponding	1.00
		Runoff	0.40			Too steep for surface application	0.32
46:							
Cloquato	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.05	Too acid	0.21	Too acid	0.21
47:							
Cloquato, high precipitation	95	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.03	Too acid	0.14	Too acid	0.14
48:							
Coburg, occasionally flooded	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	0.99	Flooding	1.00	Depth to saturated zone	0.99
		Flooding	0.60	Depth to saturated zone	0.99	Flooding	0.60
		Slow water movement	0.36	Slow water movement	0.27	Slow water movement	0.27
		Too acid	0.05	Too acid	0.21	Too acid	0.21

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
48:							
Coburg, rarely flooded	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slow water movement	0.36	Flooding	0.40	Too acid	0.31
				Too acid	0.31	Slow water movement	0.27
		Too acid	0.08	Slow water movement	0.27		
49:							
Coburg	88	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.93	Depth to saturated zone	0.93	Depth to saturated zone	0.93
		Slow water movement	0.36	Too acid	0.67	Too acid	0.67
				Slow water movement	0.27	Slow water movement	0.27
		Too acid	0.18				
50:							
Coburg, rarely flooded	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slow water movement	0.36	Flooding	0.40	Too acid	0.31
				Too acid	0.31	Slow water movement	0.27
		Too acid	0.08	Slow water movement	0.27		
51:							
Concord	92	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Runoff	0.40	Too acid	0.21	Too acid	0.21
		Too acid	0.05				
52:							
Conser	86	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Runoff	0.40	Flooding	0.40	Too acid	0.07
		Too acid	0.02	Too acid	0.07		
53:							
Dayton	93	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Strongly contrasting textural stratification	1.00	Strongly contrasting textural stratification	1.00	Ponding	1.00
						Too acid	0.99
		Ponding	1.00	Ponding	1.00		
		Too acid	0.43	Too acid	0.99		

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
54:							
Dayton, clay substratum	92	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Strongly contrasting textural stratification	1.00	Strongly contrasting textural stratification	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Too acid	0.77
		Runoff	0.40	Too acid	0.77		
55:							
Digger	50	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Droughty	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Droughty	0.99	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Droughty	0.99
		Depth to bedrock	0.01	Depth to bedrock	0.01	Too steep for sprinkler application	0.78
Bohannon	40	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.16	Depth to bedrock	0.16	Too steep for sprinkler application	0.78
						Depth to bedrock	0.16
56:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Droughty	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.99	Filtering capacity	0.99
		Depth to bedrock	0.01	Depth to bedrock	0.01	Droughty	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
56:							
Remote	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Umpcoos	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Depth to bedrock	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
57:							
Digger	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Droughty	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.99	Filtering capacity	0.99
		Depth to bedrock	0.01	Depth to bedrock	0.01	Droughty	0.99
Umpcoos	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Depth to bedrock	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
Remote	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58:							
Dixonville	46	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Depth to bedrock	0.16	Too acid	0.42	Too steep for sprinkler application	1.00
		Too acid	0.11	Depth to bedrock	0.16	Too acid	0.42
						Depth to bedrock	0.16
Gellatly	43	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Too acid	0.03	Too acid	0.14	Too steep for sprinkler application	1.00
						Too acid	0.14
59:							
Dixonville	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Slow water movement	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.16	Too acid	0.42	Slow water movement	1.00
		Too acid	0.11	Depth to bedrock	0.16	Too acid	0.42
						Depth to bedrock	0.16
Gellatly	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Slow water movement	1.00	Too steep for sprinkler application	1.00
		Too acid	0.03	Too acid	0.14	Slow water movement	1.00
						Too acid	0.14
60:							
Dixonville	34	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to bedrock	0.16	Too acid	0.42	Too steep for surface application	0.92
		Too acid	0.11	Depth to bedrock	0.16	Too acid	0.42
						Depth to bedrock	0.16
						Too steep for sprinkler application	0.02

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
60:							
Gellatly	28	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.03	Too acid	0.14	Too steep for surface application	0.92
						Too acid	0.14
						Too steep for sprinkler application	0.02
Witham	20	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Too acid	0.85	Too steep for surface application	0.92
		Too acid	0.27			Too acid	0.85
						Too steep for sprinkler application	0.02
61:							
Dupee	86	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.42	Too steep for surface application	0.92
		Too acid	0.11	Slow water movement	0.37	Too acid	0.42
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
62:							
Dupee	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.42	Too steep for sprinkler application	1.00
		Too acid	0.11	Slow water movement	0.37	Too acid	0.42
						Slow water movement	0.37
63:							
Elsie	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.27	Too acid	0.85	Too acid	0.85
						Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64:							
Elsie	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Too acid	0.85	Too steep for surface application	1.00
		Too acid	0.27	Slope	0.37	Too acid	0.85
						Too steep for sprinkler application	0.60
65:							
Fiverivers	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.06	Depth to bedrock	0.06	Filtering capacity	0.99
						Depth to bedrock	0.06
Grassmountain	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Chintimini	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
66:							
Fluvents	53	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Leaching	0.45	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Strongly contrasting textural stratification	0.10		
		Strongly contrasting textural stratification	0.10				

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
66:							
Fluvaquents	37	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Runoff	0.40	Too acid	0.85	Too acid	0.85
		Too acid	0.27				
67:							
Fluvents, high precipitation	50	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Leaching	0.45	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Strongly contrasting textural stratification	0.10		
		Strongly contrasting textural stratification	0.10				
Fluvaquents, high precipitation	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Runoff	0.40	Too acid	0.85	Too acid	0.85
		Too acid	0.27				
68:							
Formader	50	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Depth to bedrock	0.71	Depth to bedrock	0.71	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Too steep for sprinkler application	0.78
						Depth to bedrock	0.71
Hemcross	35	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
69:							
Formader	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.71	Depth to bedrock	0.71	Filtering capacity	0.99
						Depth to bedrock	0.71
Hemcross	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
70:							
Formader	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.71	Depth to bedrock	0.71	Filtering capacity	0.99
						Depth to bedrock	0.71
Klistan	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78			Filtering capacity	0.99
Hemcross	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
71:							
Gelderman	47	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too acid	0.55	Too steep for surface application	0.92
		Depth to bedrock	0.46	Depth to bedrock	0.46	Too acid	0.55
		Too acid	0.14	Slow water movement	0.37	Depth to bedrock	0.46
		Droughty	0.13	Droughty	0.13	Slow water movement	0.37
						Droughty	0.13
Jory, basalt bedrock	42	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too acid	0.67	Too steep for surface application	0.92
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
72:							
Goodin	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	0.54	Too acid	0.99	Too acid	0.99
		Slow water movement	0.50	Depth to bedrock	0.54	Too steep for surface application	0.92
		Too acid	0.43	Slow water movement	0.37	Depth to bedrock	0.54
		Droughty	0.09	Droughty	0.09	Slow water movement	0.37
						Droughty	0.09
Dupee	21	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.42	Too steep for surface application	0.92
		Too acid	0.11	Slow water movement	0.37	Too acid	0.42
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
Chehulpum	20	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff	0.40	Too acid	0.31	Too steep for surface application	0.92
		Too acid	0.08			Too acid	0.31
						Too steep for sprinkler application	0.02

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
73:							
Goodin	31	Very limited Slope Depth to bedrock Slow water movement Too acid Droughty	 1.00 0.54 0.50 0.43 0.09	Very limited Slope Too acid Depth to bedrock Slow water movement Droughty	 1.00 0.99 0.54 0.37 0.09	Very limited Too steep for surface application Too steep for sprinkler application Too acid Depth to bedrock Slow water movement	 1.00 1.00 0.99 0.54 0.37
Chehulpum	21	Very limited Droughty Depth to bedrock Slope Runoff Too acid	 1.00 1.00 1.00 0.40 0.08	Very limited Droughty Depth to bedrock Slope Too acid	 1.00 1.00 1.00 0.31	Very limited Droughty Too steep for surface application Depth to bedrock Too steep for sprinkler application Too acid	 1.00 1.00 1.00 1.00 0.31
Dupee	21	Very limited Depth to saturated zone Slope Slow water movement Too acid	 1.00 1.00 0.50 0.11	Very limited Depth to saturated zone Slope Too acid Slow water movement	 1.00 1.00 0.42 0.37	Very limited Depth to saturated zone Too steep for surface application Too steep for sprinkler application Too acid Slow water movement	 1.00 1.00 1.00 0.42 0.37
74:							
Grassmountain	40	Very limited Filtering capacity Too acid Slope	 0.99 0.78 0.63	Very limited Too acid Filtering capacity Slope	 1.00 0.99 0.63	Very limited Too acid Too steep for surface application Filtering capacity Too steep for sprinkler application	 1.00 1.00 0.99 0.78
Fiverivers	30	Very limited Filtering capacity Too acid Slope Depth to bedrock	 0.99 0.78 0.63 0.06	Very limited Too acid Filtering capacity Slope Depth to bedrock	 1.00 0.99 0.63 0.06	Very limited Too acid Too steep for surface application Filtering capacity Too steep for sprinkler application Depth to bedrock	 1.00 1.00 0.99 0.78 0.06

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
74:							
Chintimini----------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
75:							
Harslow-------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.16	Filtering capacity	0.99
		Depth to bedrock	0.16	Droughty	0.01	Depth to bedrock	0.16
Kilchis-------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Depth to bedrock	1.00
		Droughty	0.95	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.95	Filtering capacity	0.99
Rock outcrop--------	15	Not rated		Not rated		Not rated	
76:							
Harslow-------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.16	Filtering capacity	0.99
		Depth to bedrock	0.16	Droughty	0.01	Depth to bedrock	0.16

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
76:							
Klistan-------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78			Filtering capacity	0.99
Rock outcrop--------	20	Not rated		Not rated		Not rated	
77:							
Hazelair------------	81	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	0.46	Depth to bedrock	0.46	Too steep for surface application	0.92
		Runoff	0.40	Too acid	0.42	Depth to bedrock	0.46
		Too acid	0.11	Droughty	0.05	Too acid	0.42
78:							
Hazelair------------	81	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.46	Depth to bedrock	0.46	Too steep for sprinkler application	1.00
		Runoff	0.40	Too acid	0.42	Depth to bedrock	0.46
79:							
Hazelair------------	81	Very limited		Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.46	Depth to bedrock	0.46	Too steep for sprinkler application	1.00
		Runoff	0.40	Too acid	0.42	Depth to bedrock	0.46

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
80:							
Hazelair	82	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Runoff	0.40	Depth to bedrock	0.06	Too steep for sprinkler application	0.98
		Depth to bedrock	0.06	Too acid	0.03	Depth to bedrock	0.06
81:							
Helmick	86	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Too acid	0.42	Too steep for surface application	0.92
		Too acid	0.11			Too acid	0.42
						Too steep for sprinkler application	0.02
82:							
Helvetia	94	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.43	Slow water movement	0.32	Too steep for surface application	0.32
		Too acid	0.01	Too acid	0.01	Slow water movement	0.32
						Too acid	0.01
83:							
Hemcross	55	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
Klistan	35	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slope	0.63	Filtering capacity	0.99
		Slope	0.63			Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
84:							
Hemcross	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Klistan	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78			Filtering capacity	0.99
85:							
Holcomb	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Strongly contrasting textural stratification	0.90	Strongly contrasting textural stratification	0.90	Too acid	0.67
		Runoff	0.40	Too acid	0.67		
		Too acid	0.18				
86:							
Honeygrove	50	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.89	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.78	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Too steep for sprinkler application	0.78
						Slow water movement	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
86:							
Peavine, sedimentary bedrock-----------	40	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.89	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.78	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Too steep for sprinkler application	0.78
		Depth to bedrock	0.06	Depth to bedrock	0.06	Slow water movement	0.78
87:							
Honeygrove----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.89	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.78	Filtering capacity	0.99
						Slow water movement	0.78
Peavine, sedimentary bedrock-----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.89	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.78	Filtering capacity	0.99
		Depth to bedrock	0.06	Depth to bedrock	0.06	Slow water movement	0.78
88:							
Honeygrove, basalt bedrock-----------	50	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.94	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Slow water movement	0.94
						Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
88:							
Peavine, basalt bedrock	35	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.89	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.78	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Too steep for sprinkler application	0.78
		Depth to bedrock	0.03	Depth to bedrock	0.03	Slow water movement	0.78
89:							
Honeygrove, basalt bedrock	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.94	Filtering capacity	0.99
						Slow water movement	0.94
Peavine, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.89	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.78	Filtering capacity	0.99
		Depth to bedrock	0.03	Depth to bedrock	0.03	Slow water movement	0.78
90:							
Honeygrove, basalt bedrock	55	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.94	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Slow water movement	0.94
						Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
90:							
Shivigny-----------	30	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Slow water movement	0.89	Slow water movement	0.78	Filtering capacity	0.99
		Too acid	0.78	Slope	0.63	Too steep for sprinkler application	0.78
		Slope	0.63	Droughty	0.40	Slow water movement	0.78
91:							
Jory, basalt bedrock	86	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too acid	0.67	Too steep for surface application	0.92
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
92:							
Jory, basalt bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
93:							
Jory, basalt bedrock	84	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
94:							
Jory, sedimentary bedrock	81	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too acid	0.67	Too steep for surface application	0.92
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
95:							
Jory, sedimentary bedrock	81	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
96:							
Jory, sedimentary bedrock	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
97:							
Jory, sedimentary bedrock	72	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too acid	0.67	Too steep for surface application	0.92
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
						Too steep for sprinkler application	0.02

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
97:							
Dupee	22	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.42	Too steep for surface application	0.92
		Too acid	0.11	Slow water movement	0.37	Too acid	0.42
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
98:							
Jory, basalt bedrock	57	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
Gelderman	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.55	Too steep for sprinkler application	1.00
		Depth to bedrock	0.46	Depth to bedrock	0.46	Too acid	0.55
		Too acid	0.14	Slow water movement	0.37	Depth to bedrock	0.46
		Droughty	0.13	Droughty	0.13	Slow water movement	0.37
99:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
99:							
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
		Depth to bedrock	0.06	Depth to bedrock	0.06	Slow water movement	0.37
						Depth to bedrock	0.06
100:							
Jory, basalt bedrock	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
						Slow water movement	0.37
Nekia	32	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.67	Too steep for sprinkler application	1.00
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
		Depth to bedrock	0.06	Depth to bedrock	0.06	Slow water movement	0.37
						Depth to bedrock	0.06
101:							
Kirkendall	40	Somewhat limited		Very limited		Somewhat limited	
		Slow water movement	0.89	Flooding	1.00	Too acid	0.96
		Flooding	0.60	Too acid	0.96	Slow water movement	0.78
		Depth to saturated zone	0.46	Slow water movement	0.78	Flooding	0.60
		Too acid	0.37	Depth to saturated zone	0.46	Depth to saturated zone	0.46
Nekoma	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Too acid	0.05	Too acid	0.21	Too acid	0.21
Quosatana	15	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Slow water movement	1.00	Slow water movement	1.00
		Runoff	0.40	Too acid	0.67	Too acid	0.67
		Too acid	0.18				

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
102:							
Klistan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78			Filtering capacity	0.99
Harslow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.16	Filtering capacity	0.99
		Depth to bedrock	0.16	Droughty	0.01	Depth to bedrock	0.16
103:							
Klistan	40	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slope	0.63	Filtering capacity	0.99
		Slope	0.63			Too steep for sprinkler application	0.78
Harslow	25	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slope	0.63	Filtering capacity	0.99
		Slope	0.63	Depth to bedrock	0.16	Too steep for sprinkler application	0.78
		Depth to bedrock	0.16	Droughty	0.01	Depth to bedrock	0.16
Hemcross	20	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
104:							
Laderly	35	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.03	Depth to bedrock	0.03	Too steep for sprinkler application	0.78
						Depth to bedrock	0.03
Murtip	30	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
Giveout	25	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.06	Depth to bedrock	0.06	Too steep for sprinkler application	0.78
						Depth to bedrock	0.06
105:							
Linslaw	91	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.27	Too acid	0.85	Too acid	0.85
				Flooding	0.40		
106:							
Linslaw	92	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.27	Too acid	0.85	Too acid	0.85
				Flooding	0.40	Too steep for surface application	0.32

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Droughty	0.95	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.95	Filtering capacity	0.99
		Depth to bedrock	0.06	Depth to bedrock	0.06	Droughty	0.95
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
108:							
Lurnick	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Droughty	0.95	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.95	Filtering capacity	0.99
		Depth to bedrock	0.06	Depth to bedrock	0.06	Droughty	0.95
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
Maryspeak	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
109:							
MacDunn	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
		Droughty	0.07	Droughty	0.07	Slow water movement	0.37
Price	28	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
						Slow water movement	0.37
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
		Droughty	0.11	Droughty	0.11	Slow water movement	0.37
110:							
Malabon	89	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.36	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Slow water movement	0.27	Slow water movement	0.27
111:							
Malabon, rarely flooded	89	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.36	Flooding	0.40	Slow water movement	0.27
		Too acid	0.03	Slow water movement	0.27	Too acid	0.14
				Too acid	0.14		

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
112:							
Maryspeak	90	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
113:							
McAlpin	82	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.77	Too acid	0.77
		Too acid	0.22	Slow water movement	0.37	Slow water movement	0.37
114:							
McAlpin	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.77	Too acid	0.77
		Too acid	0.22	Slow water movement	0.37	Slow water movement	0.37
						Too steep for surface application	0.08
115:							
McAlpin, high precipitation	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Slow water movement	0.37	Slow water movement	0.37
116:							
McAlpin, high precipitation	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Slow water movement	0.37	Slow water movement	0.37
						Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
117:							
McAlpin, rarely flooded	81	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Flooding	0.40	Slow water movement	0.37
				Slow water movement	0.37		
118:							
McBee	92	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.05	Too acid	0.21	Too acid	0.21
119:							
McBee, nonflooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.03	Too acid	0.14	Too acid	0.14
120:							
Meda	40	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
Treharne	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.62	Too acid	1.00	Too acid	1.00
		Slow water movement	0.30	Slow water movement	0.22	Slow water movement	0.22
Wasson	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	0.99	Flooding	1.00	Too acid	1.00
		Too acid	0.78	Too acid	1.00	Filtering capacity	0.99
		Flooding	0.60	Filtering capacity	0.99	Flooding	0.60
		Runoff	0.40				

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
121:							
Mulkey	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.80	Too acid	1.00	Too acid	1.00
		Slope	0.63	Depth to bedrock	0.80	Too steep for surface application	1.00
		Too acid	0.56	Slope	0.63	Depth to bedrock	0.80
						Too steep for sprinkler application	0.78
122:							
Mulkey	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.80	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.56	Depth to bedrock	0.80	Too acid	1.00
						Depth to bedrock	0.80
123:							
Murtip	45	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
Giveout	25	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.06	Depth to bedrock	0.06	Too steep for sprinkler application	0.78
						Depth to bedrock	0.06
Laderly	20	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.03	Depth to bedrock	0.03	Too steep for sprinkler application	0.78
						Depth to bedrock	0.03

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
124:							
Nekoma	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Too acid	0.05	Too acid	0.21	Too acid	0.21
Fluvaquents	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Runoff	0.40	Too acid	0.85	Too acid	0.85
		Too acid	0.27				
125:							
Newberg	92	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Flooding	1.00	Filtering capacity	0.99
		Flooding	0.60	Filtering capacity	0.99	Flooding	0.60
		Too acid	0.05	Too acid	0.21	Too acid	0.21
126:							
Newberg, high precipitation	95	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Flooding	1.00	Filtering capacity	0.99
		Flooding	0.60	Filtering capacity	0.99	Flooding	0.60
		Too acid	0.05	Too acid	0.21	Too acid	0.21
127:							
Newberg	92	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Flooding	1.00	Filtering capacity	0.99
		Flooding	0.60	Filtering capacity	0.99	Flooding	0.60
		Too acid	0.11	Too acid	0.42	Too acid	0.42
128:							
Oldblue	55	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
Burntwoods	35	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slope	0.63	Filtering capacity	0.99
		Slope	0.63			Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
129:							
Panther	81	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Too acid	0.55	Too steep for surface application	0.68
		Too acid	0.14			Too acid	0.55
130:							
Pengra	83	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Strongly contrasting textural stratification	0.99	Strongly contrasting textural stratification	0.99	Too steep for surface application	0.92
						Too acid	0.42
		Runoff	0.40	Too acid	0.42	Too steep for sprinkler application	0.02
		Too acid	0.11				
131:							
Philomath	76	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
				Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Slow water movement	1.00	Slow water movement	1.00
		Droughty	1.00				
		Runoff	0.40	Too acid	0.42	Too steep for surface application	0.92
		Too acid	0.11			Too acid	0.42
132:							
Pilchuck	79	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Strongly contrasting textural stratification	1.00	Strongly contrasting textural stratification	1.00	Droughty	0.03
						Too acid	0.01
		Leaching	0.45	Droughty	0.03		
		Droughty	0.03	Too acid	0.01		
133:							
Pits	100	Not rated		Not rated		Not rated	

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
134:							
Preacher	40	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
Blachly	30	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slow water movement	0.92	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Slow water movement	0.92
						Too steep for sprinkler application	0.78
Bohannon	20	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.16	Depth to bedrock	0.16	Too steep for sprinkler application	0.78
						Depth to bedrock	0.16
135:							
Preacher	50	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
135:							
Bohannon------------	30	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
		Depth to bedrock	0.16	Depth to bedrock	0.16	Too steep for sprinkler application	0.78
						Depth to bedrock	0.16
136:							
Preacher------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Bohannon------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Depth to bedrock	0.16	Depth to bedrock	0.16	Filtering capacity	0.99
						Depth to bedrock	0.16
Slickrock-----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
137:							
Price	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
						Slow water movement	0.37
MacDunn	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
		Droughty	0.07	Droughty	0.07	Slow water movement	0.37
Ritner	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
		Droughty	0.11	Droughty	0.11	Slow water movement	0.37
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Strongly contrasting textural stratification	0.46	Strongly contrasting textural stratification	0.46	Slow water movement	0.27
		Slow water movement	0.36	Slow water movement	0.27	Too acid	0.07
		Too acid	0.02	Too acid	0.07		

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
140:							
Santiam	91	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.18	Too acid	0.67	Too acid	0.67
						Too steep for surface application	0.32
141:							
Santiam	93	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Too steep for surface application	1.00
		Slope	0.96	Slope	0.96	Slow water movement	1.00
		Too acid	0.18	Too acid	0.67	Too steep for sprinkler application	0.98
						Too acid	0.67
142:							
Sevencedars	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.20	Filtering capacity	0.99
		Depth to bedrock	0.20			Depth to bedrock	0.20
143:							
Sevencedars	35	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
143:							
Newanna	30	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slope	0.63	Filtering capacity	0.99
		Slope	0.63	Depth to bedrock	0.20	Too steep for sprinkler application	0.78
		Depth to bedrock	0.20			Depth to bedrock	0.20
Woodspoint	25	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
144:							
Sevencedars	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99
Newanna	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.20	Filtering capacity	0.99
		Depth to bedrock	0.20			Depth to bedrock	0.20
Woodspoint	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
						Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
145:							
Shivigny	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.89	Slow water movement	0.78	Filtering capacity	0.99
		Too acid	0.78	Droughty	0.40	Slow water movement	0.78
Honeygrove, basalt bedrock	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Slow water movement	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Slow water movement	0.94	Filtering capacity	0.99
						Slow water movement	0.94
146:							
Slickrock	90	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Filtering capacity	0.99
						Too steep for sprinkler application	0.78
147:							
Steiwer	49	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for surface application	0.92
		Slow water movement	0.50	Too acid	0.67	Depth to bedrock	0.80
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
		Droughty	0.16	Droughty	0.16	Slow water movement	0.37
						Droughty	0.16

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
147:							
Chehulpum	41	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff	0.40	Too acid	0.31	Too steep for surface application	0.92
		Too acid	0.08			Too acid	0.31
						Too steep for sprinkler application	0.02
148:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for sprinkler application	1.00
		Slow water movement	0.50	Too acid	0.67	Depth to bedrock	0.80
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
		Droughty	0.16	Droughty	0.16	Slow water movement	0.37
Chehulpum	40	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Runoff	0.40	Too acid	0.31	Too steep for sprinkler application	1.00
		Too acid	0.08			Too acid	0.31
149:							
Steiwer	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.80	Depth to bedrock	0.80	Too steep for sprinkler application	1.00
		Slow water movement	0.50	Too acid	0.67	Depth to bedrock	0.80
		Too acid	0.18	Slow water movement	0.37	Too acid	0.67
		Droughty	0.16	Droughty	0.16	Slow water movement	0.37
Chehulpum	39	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Runoff	0.40	Too acid	0.31	Depth to bedrock	1.00
		Too acid	0.08			Too acid	0.31

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
150:							
Treharne	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.62	Too acid	1.00	Too acid	1.00
		Slow water movement	0.30	Slow water movement	0.22	Slow water movement	0.22
Eilertsen	30	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Filtering capacity	0.99
		Depth to saturated zone	0.02	Depth to saturated zone	0.02	Too steep for surface application	0.08
						Depth to saturated zone	0.02
Zyzzug	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.89	Too acid	0.96	Too acid	0.96
		Runoff	0.40	Slow water movement	0.78	Slow water movement	0.78
		Too acid	0.37	Flooding	0.40		
151:							
Valsetz	55	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Slope	0.63	Filtering capacity	0.99
		Slope	0.63	Depth to bedrock	0.10	Too steep for sprinkler application	0.78
		Depth to bedrock	0.10			Depth to bedrock	0.10
Yellowstone	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Droughty	0.99	Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.78	Droughty	0.99	Filtering capacity	0.99
		Slope	0.63	Slope	0.63	Droughty	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
152:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.10	Filtering capacity	0.99
		Depth to bedrock	0.10			Depth to bedrock	0.10
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Depth to bedrock	1.00
		Droughty	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.99	Filtering capacity	0.99
153:							
Valsetz	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Dense layer	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Depth to bedrock	0.10	Filtering capacity	0.99
		Depth to bedrock	0.10			Depth to bedrock	0.10
Yellowstone	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.99	Too acid	1.00	Depth to bedrock	1.00
		Droughty	0.99	Filtering capacity	0.99	Too acid	1.00
		Too acid	0.78	Droughty	0.99	Filtering capacity	0.99

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
154:							
Verboort	97	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Strongly contrasting textural stratification	1.00	Strongly contrasting textural stratification	1.00	Too acid	0.42
		Runoff	0.40	Too acid	0.42		
155:							
Waldo	95	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Slow water movement	1.00
				Slow water movement	1.00		
		Ponding	1.00			Ponding	1.00
		Flooding	0.60	Ponding	1.00	Too acid	0.67
		Runoff	0.40	Too acid	0.67	Flooding	0.60
156:							
Waldo, high precipitation	95	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Slow water movement	1.00
				Slow water movement	1.00		
		Ponding	1.00			Ponding	1.00
		Flooding	0.60	Ponding	1.00	Too acid	0.67
		Runoff	0.40	Too acid	0.67	Flooding	0.60
157:							
Wapato	89	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	0.60	Ponding	1.00	Flooding	0.60
		Runoff	0.40	Slow water movement	0.27	Slow water movement	0.27
		Slow water movement	0.36	Too acid	0.01	Too acid	0.01
158:							
Wapato, high precipitation	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	0.60	Ponding	1.00	Flooding	0.60
		Runoff	0.40	Slow water movement	0.27	Slow water movement	0.27
		Slow water movement	0.36	Too acid	0.07	Too acid	0.07
159:							
Water	100	Not rated		Not rated		Not rated	

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
160:							
Wellsdale	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Too steep for sprinkler application	1.00
		Slow water movement	0.50	Too acid	0.91	Depth to saturated zone	0.99
		Too acid	0.32	Slow water movement	0.37	Too acid	0.91
						Slow water movement	0.37
Willakenzie	33	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
161:							
Wellsdale	54	Very limited		Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slow water movement	0.50	Too acid	0.91	Too steep for surface application	0.92
		Too acid	0.32	Slow water movement	0.37	Too acid	0.91
						Slow water movement	0.37
						Too steep for sprinkler application	0.02
Willakenzie	33	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slow water movement	0.37	Too steep for surface application	0.92
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
						Too steep for sprinkler application	0.02

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
161:							
Dupee	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Too acid	0.42	Too acid	0.42
		Too acid	0.11	Slow water movement	0.37	Slow water movement	0.37
						Too steep for surface application	0.32
162:							
Wellsdale, north slopes	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Too steep for sprinkler application	1.00
		Slow water movement	0.50	Too acid	0.91	Depth to saturated zone	0.99
		Too acid	0.32	Slow water movement	0.37	Too acid	0.91
						Slow water movement	0.37
Willakenzie, north slopes	27	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
Dupee, north slopes	10	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Too acid	0.42	Too steep for sprinkler application	1.00
		Too acid	0.11	Slow water movement	0.37	Too acid	0.42
						Slow water movement	0.37

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
163:							
Willakenzie---------	83	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slow water movement	0.37	Too steep for surface application	0.92
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
						Too steep for sprinkler application	0.02
164:							
Willakenzie---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
165:							
Willakenzie---------	86	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
166:							
Willakenzie---------	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
167:							
Willakenzie, south slopes	78	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
Wellsdale, south slopes	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Too steep for sprinkler application	1.00
		Slow water movement	0.50	Too acid	0.91	Depth to saturated zone	0.99
		Too acid	0.32	Slow water movement	0.37	Too acid	0.91
						Slow water movement	0.37
168:							
Willakenzie	79	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.50	Slow water movement	0.37	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Too acid	0.31	Slow water movement	0.37
		Too acid	0.08	Depth to bedrock	0.29	Too acid	0.31
		Droughty	0.01	Droughty	0.01	Depth to bedrock	0.29
Wellsdale	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Too steep for sprinkler application	1.00
		Slow water movement	0.50	Too acid	0.91	Depth to saturated zone	0.99
		Too acid	0.32	Slow water movement	0.37	Too acid	0.91
						Slow water movement	0.37
169:							
Willamette	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.18	Too acid	0.67	Too acid	0.67

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
170:							
Willamette----------	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.18	Too acid	0.67	Too steep for surface application	0.92
						Too acid	0.67
						Too steep for sprinkler application	0.02
171:							
Willamette----------	97	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.18	Too acid	0.67	Too steep for sprinkler application	1.00
						Too acid	0.67
172:							
Witham--------------	79	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff	0.40	Too acid	0.85	Too steep for surface application	0.92
		Too acid	0.27			Too acid	0.85
						Too steep for sprinkler application	0.02
173:							
Witham--------------	75	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Runoff	0.40	Too acid	0.85	Too steep for sprinkler application	1.00
		Too acid	0.27			Too acid	0.85
174:							
Witzel--------------	46	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Cobble content	1.00	Cobble content	1.00	Cobble content	1.00
		Slow water movement	0.50	Large stones on the surface	0.50	Too steep for surface application	0.92
		Large stones on the surface	0.50	Slow water movement	0.37	Large stones on the surface	0.50

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
174:							
Ritner	44	Very limited		Very limited		Very limited	
		Filtering capacity	0.99	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Filtering capacity	0.99	Filtering capacity	0.99
		Slow water movement	0.50	Slow water movement	0.37	Too steep for surface application	0.92
		Droughty	0.11	Droughty	0.11	Slow water movement	0.37
		Depth to bedrock	0.01	Depth to bedrock	0.01	Droughty	0.11
175:							
Witzel	46	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	1.00	Cobble content	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Cobble content	1.00
		Slow water movement	0.50	Large stones on the surface	0.50	Too steep for sprinkler application	1.00
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
		Droughty	0.11	Droughty	0.11	Slow water movement	0.37
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Cobble content	1.00	Cobble content	1.00	Depth to bedrock	1.00
		Slow water movement	0.50	Large stones on the surface	0.50	Cobble content	1.00

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
176:							
Ritner	44	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	1.00	Too steep for sprinkler application	1.00
		Too acid	0.78	Filtering capacity	0.99	Too acid	1.00
		Slow water movement	0.50	Slow water movement	0.37	Filtering capacity	0.99
		Droughty	0.11	Droughty	0.11	Slow water movement	0.37
177:							
Woodburn	92	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.08	Too acid	0.31	Too acid	0.31
178:							
Woodburn	92	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.08	Too acid	0.31	Too steep for surface application	0.92
						Too acid	0.31
						Too steep for sprinkler application	0.02
179:							
Woodburn	94	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Too steep for sprinkler application	1.00
		Too acid	0.08	Too acid	0.31	Depth to saturated zone	0.99
						Too acid	0.31
180:							
Woodburn	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Too steep for sprinkler application	1.00
		Too acid	0.08	Too acid	0.31	Depth to saturated zone	0.99
						Too acid	0.31

Table 20.--Construction Materials

(The following criteria are used for determining the rating class (good, fair, or poor). A rating of good source for gravel and sand requires a value greater than or equal to 0.75 for either the thickest or bottom layer. A rating of fair source for gravel and sand requires a value greater than or equal to 0.08 and less than 0.75 for either the thickest or bottom layer. A rating of poor source for gravel and sand requires a value of less than 0.08 for both the thickest and bottom layers. A rating of good source for topsoil requires a value greater than 0.99 for all limiting features. A rating of fair source for topsoil requires all limiting features to have a value greater than 0.00. A rating of poor source for topsoil is assigned if any limiting feature has a value of 0.00.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
1:							
Abiqua	89	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
2:							
Abiqua	84	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
3:							
Abiqua, high precipitation	90	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
4:							
Abiqua, high precipitation	95	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
5:							
Abiqua, rarely flooded	86	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
6:							
Alsea	95	Poor		Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.99
		Thickest layer	0.00	Bottom layer	0.04		

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
7:							
Alsea, rarely flooded	95	Poor		Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.99
		Thickest layer	0.00	Bottom layer	0.04		
8:							
Amity	94	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.07
		Thickest layer	0.00	Thickest layer	0.00		
9:							
Apt	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.88
McDuff	30	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.76
						Too clayey	0.82
						Depth to bedrock	0.97
10:							
Apt	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.88
McDuff	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.76
						Too clayey	0.82
						Depth to bedrock	0.97
11:							
Aquents	97	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00		
12:							
Awbrig	87	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
13:							
Bashaw, nonflooded	89	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
14:							
Bashaw, flooded----	90	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
15:							
Bashaw, nonflooded	87	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
16:							
Bashaw, nonflooded	87	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
17:							
Bellpine-----------	68	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.21
						Too acid	0.99
Jory, sedimentary bedrock-----------	24	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.98
18:							
Bellpine-----------	51	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Depth to bedrock	0.21
						Too acid	0.99
Jory, sedimentary bedrock-----------	42	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Too acid	0.98

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
19:							
Bellpine-----------	52	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Depth to bedrock	0.21
						Too acid	0.99
Jory, sedimentary bedrock-----------	43	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.98
20:							
Bellpine-----------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Depth to bedrock	0.21
						Too acid	0.99
Jory, sedimentary bedrock-----------	42	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.98
21:							
Blachly------------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
Kilowan------------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Rock fragments	0.50
						Depth to bedrock	0.65
						Too acid	0.88
22:							
Blachly------------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
22:							
Kilowan-----------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Rock fragments	0.50
						Depth to bedrock	0.65
						Too acid	0.88
23:							
Bohannon----------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.76
						Depth to bedrock	0.84
Preacher----------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.88
24:							
Bohannon----------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.76
						Depth to bedrock	0.84
Preacher----------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.88
25:							
Briedwell---------	84	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.38	Thickest layer	0.00		
						Rock fragments	0.00
26:							
Briedwell---------	94	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.38	Thickest layer	0.00		
						Rock fragments	0.00
						Slope	0.04

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
27:							
Burntwoods	50	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.14	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.98
Oldblue	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.88
28:							
Camas	87	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too sandy	0.00
		Bottom layer	0.14	Thickest layer	0.04	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
29:							
Camas, rarely flooded	90	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too sandy	0.00
		Bottom layer	0.14	Thickest layer	0.04	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
30:							
Caterl	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.95
Laderly	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.95
						Depth to bedrock	0.97
Romanose	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
31:							
Caterl	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.95
Laderly	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.95
						Depth to bedrock	0.97
Romanose	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
32:							
Caterl	35	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.95
Murtip	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.59
						Hard to reclaim (rock fragments)	0.68
Giveout	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.93
33:							
Caterl	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.95

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
33:							
Murtip	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.59
						Hard to reclaim (rock fragments)	0.68
Laderly	20	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.95
						Depth to bedrock	0.97
34:							
Chapman	92	Fair		Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.12	Bottom layer	0.05		
35:							
Chapman, high precipitation	95	Fair		Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.12	Bottom layer	0.05		
36:							
Chehalem	91	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
37:							
Chehalem	92	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
38:							
Chehalis	90	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		
39:							
Chehalis, high precipitation	95	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
40:							
Chehalis	92	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		
41:							
Chintimini	45	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.88
						Too acid	0.92
Blodgett	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.88
42:							
Chintimini	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.88
						Too acid	0.92
Blodgett	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.88
Fiverivers	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.88
						Depth to bedrock	0.93
						Too acid	0.98
43:							
Chintimini	45	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.88
						Too acid	0.92

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
43:							
Grassmountain------	45	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.95
44:							
Chismore-----------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.38
						Too acid	0.88
Pyburn-------------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
45:							
Chismore-----------	60	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.38
						Too acid	0.88
Pyburn-------------	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
46:							
Cloquato-----------	90	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		
47:							
Cloquato, high precipitation-----	95	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		
48:							
Coburg, occasionally flooded-----------	45	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.01
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
48:							
Coburg, rarely flooded	44	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53
49:							
Coburg	88	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.13
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.80
50:							
Coburg, rarely flooded	89	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53
51:							
Concord	92	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00		
52:							
Conser	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
53:							
Dayton	93	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
54:							
Dayton, clay substratum	92	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
55:							
Digger	50	Fair		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.07	Thickest layer	0.00	Slope	0.37
						Depth to bedrock	0.99

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
55:							
Bohannon-----------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
						Depth to bedrock	0.84
56:							
Digger-------------	40	Fair		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.07	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.99
Remote-------------	35	Fair		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.25	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.92
Umpcoos------------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.99
57:							
Digger-------------	40	Fair		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.07	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.99
Umpcoos------------	35	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.99
Remote-------------	20	Fair		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.25	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.92

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
58:							
Dixonville----------	46	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Depth to bedrock	0.84
Gellatly-----------	43	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
59:							
Dixonville----------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Depth to bedrock	0.84
Gellatly-----------	33	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
60:							
Dixonville----------	34	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.84
Gellatly-----------	28	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00		
Witham-------------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
61:							
Dupee--------------	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
62:							
Dupee--------------	87	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Slope	0.00
						Too acid	0.76

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
63:							
Elsie	80	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too acid	0.59
		Thickest layer	0.00	Thickest layer	0.00		
64:							
Elsie	85	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too acid	0.59
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.63
65:							
Fiverivers	35	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.88
						Depth to bedrock	0.93
						Too acid	0.98
Grassmountain	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.95
Chintimini	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.88
						Too acid	0.92
66:							
Fluvents	53	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.29	Thickest layer	0.00		
Fluvaquents	37	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
67:							
Fluvents, high precipitation	50	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.29	Thickest layer	0.00		

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
67:							
Fluvaquents, high precipitation-----	45	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
68:							
Formader-----------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.29
						Slope	0.37
						Too acid	0.88
Hemcross-----------	35	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.59
						Rock fragments	0.88
69:							
Formader-----------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.29
						Too acid	0.88
Hemcross-----------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.59
						Rock fragments	0.88
70:							
Formader-----------	35	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.29
						Too acid	0.88
Klistan------------	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.88

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
70:							
Hemcross	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.59
						Rock fragments	0.88
71:							
Gelderman	47	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.54
						Too acid	0.92
Jory, basalt bedrock	42	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00		
72:							
Goodin	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.46
						Too acid	0.68
Dupee	21	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
Chehulpum	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.00
		Thickest layer	0.00	Thickest layer	0.00		
73:							
Goodin	31	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Depth to bedrock	0.46
						Too acid	0.68
Chehulpum	21	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
73:							
Dupee----------------	21	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Slope	0.00
						Too acid	0.76
74:							
Grassmountain------	40	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.95
Fiverivers----------	30	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.88
						Depth to bedrock	0.93
						Too acid	0.98
Chintimini----------	15	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.88
						Too acid	0.92
75:							
Harslow-------------	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.84
						Too acid	0.88
Kilchis-------------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.95
Rock outcrop--------	15	Not rated		Not rated		Not rated	

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
76:							
Harslow-----------	35	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.84
						Too acid	0.88
Klistan-----------	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.88
Rock outcrop-------	20	Not rated		Not rated		Not rated	
77:							
Hazelair----------	81	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Depth to bedrock	0.54
78:							
Hazelair----------	81	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Too clayey	0.00
						Depth to bedrock	0.54
79:							
Hazelair----------	81	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
						Too clayey	0.00
						Depth to bedrock	0.54
80:							
Hazelair----------	82	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
						Slope	0.04
						Depth to bedrock	0.93

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
81:							
Helmick	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
						Too acid	0.95
82:							
Helvetia	94	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00		
83:							
Hemcross	55	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.59
						Rock fragments	0.88
Klistan	35	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.00	Thickest layer	0.00		
						Rock fragments	0.00
						Slope	0.37
						Too acid	0.88
84:							
Hemcross	45	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.59
						Rock fragments	0.88
Klistan	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.88
85:							
Holcomb	85	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.14
		Thickest layer	0.00	Thickest layer	0.00		

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
86:							
Honeygrove	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
Peavine, sedimentary bedrock	40	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.82
						Depth to bedrock	0.93
						Too acid	0.98
87:							
Honeygrove	45	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
Peavine, sedimentary bedrock	35	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.82
						Depth to bedrock	0.93
						Too acid	0.98
88:							
Honeygrove, basalt bedrock	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
Peavine, basalt bedrock	35	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.59
						Depth to bedrock	0.97

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
89:							
Honeygrove, basalt bedrock-----------	45	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
Peavine, basalt bedrock-----------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.59
						Depth to bedrock	0.97
90:							
Honeygrove, basalt bedrock-----------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
Shivigny-----------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Slope	0.37
						Too acid	0.76
91:							
Jory, basalt bedrock-----------	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00		
92:							
Jory, basalt bedrock-----------	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
93:							
Jory, basalt bedrock	84	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
94:							
Jory, sedimentary bedrock	81	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.98
95:							
Jory, sedimentary bedrock	81	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Too acid	0.98
96:							
Jory, sedimentary bedrock	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.98
97:							
Jory, sedimentary bedrock	72	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.98
Dupee	22	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
98:							
Jory, basalt bedrock	57	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
98:							
Gelderman----------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Depth to bedrock	0.54
						Too acid	0.92
99:							
Jory, basalt bedrock-----------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
Nekia--------------	32	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00
						Rock fragments	0.88
						Depth to bedrock	0.93
						Too acid	0.98
100:							
Jory, basalt bedrock-----------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
Nekia--------------	32	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Rock fragments	0.88
						Depth to bedrock	0.93
						Too acid	0.98
101:							
Kirkendall---------	40	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too acid	0.76
		Thickest layer	0.00	Thickest layer	0.00		
Nekoma-------------	30	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too sandy	0.78
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.99
Quosatana----------	15	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00		

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
102:							
Klistan-----------	50	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.88
Harslow-----------	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.84
						Too acid	0.88
103:							
Klistan-----------	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.00	Thickest layer	0.00		
						Rock fragments	0.00
						Slope	0.37
						Too acid	0.88
Harslow-----------	25	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.37
						Depth to bedrock	0.84
						Too acid	0.88
Hemcross----------	20	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.59
						Rock fragments	0.88
104:							
Laderly-----------	35	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.95
						Depth to bedrock	0.97
Murtip------------	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.59
						Hard to reclaim (rock fragments)	0.68

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
104:							
Giveout-----------	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Depth to bedrock	0.93
105:							
Linslaw-----------	91	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.01
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.07
						Too acid	0.98
106:							
Linslaw-----------	92	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.01
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.07
						Too acid	0.98
107:							
Lurnick-----------	60	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.93
						Too acid	0.98
Luckiamute---------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.76
108:							
Lurnick-----------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.93
						Too acid	0.98
Luckiamute---------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.76

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
108:							
Maryspeak	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.03	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too sandy	0.32
						Too acid	0.95
109:							
MacDunn	44	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too clayey	0.00
						Too acid	0.95
Price	28	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Hard to reclaim (rock fragments)	0.50
						Rock fragments	0.88
						Too acid	0.99
Ritner	20	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too clayey	0.00
						Too acid	0.95
						Depth to bedrock	0.99
110:							
Malabon	89	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.11
		Thickest layer	0.00	Thickest layer	0.00		
111:							
Malabon, rarely flooded	89	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00		

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
112:							
Maryspeak----------	90	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Thickest layer	0.00	Thickest layer	0.03	Rock fragments	0.00
						Too sandy	0.32
						Slope	0.37
						Too acid	0.95
113:							
McAlpin------------	82	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.44
114:							
McAlpin------------	84	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.44
115:							
McAlpin, high precipitation-----	90	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.44
116:							
McAlpin, high precipitation-----	90	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.44
117:							
McAlpin, rarely flooded----------	81	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Bottom layer	0.00	Thickest layer	0.00	Wetness depth	0.38
118:							
McBee--------------	92	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.80
119:							
McBee, nonflooded--	85	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.80

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
120:							
Meda	40	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.08
						Slope	0.37
						Too acid	0.99
Treharne	25	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.29
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.54
						Too acid	0.88
Wasson	15	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too sandy	0.22
						Too acid	0.95
121:							
Mulkey	85	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.09
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.21
						Slope	0.37
						Too acid	0.82
122:							
Mulkey	85	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.09
						Depth to bedrock	0.21
						Too acid	0.82
123:							
Murtip	45	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.59
						Hard to reclaim (rock fragments)	0.68
Giveout	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Depth to bedrock	0.93

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
123:							
Laderly-----------	20	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.95
						Depth to bedrock	0.97
124:							
Nekoma------------	50	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too sandy	0.78
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.99
Fluvaquents--------	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too acid	0.95
125:							
Newberg-----------	92	Poor		Fair		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.17		
126:							
Newberg, high precipitation-----	95	Poor		Fair		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.17		
127:							
Newberg-----------	92	Poor		Fair		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.16		
128:							
Oldblue-----------	55	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.88
Burntwoods---------	35	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.14	Thickest layer	0.00	Rock fragments	0.00
						Slope	0.37
						Too acid	0.98

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
129:							
Panther-----------	81	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
						Too acid	0.50
130:							
Pengra------------	83	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
131:							
Philomath---------	76	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.00
132:							
Pilchuck----------	79	Poor		Fair		Fair	
		Thickest layer	0.00	Bottom layer	0.00	Too sandy	0.22
		Bottom layer	0.00	Thickest layer	0.22		
133:							
Pits--------------	100	Not rated		Not rated		Not rated	
134:							
Preacher----------	40	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.88
Blachly-----------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
Bohannon----------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
						Depth to bedrock	0.84
135:							
Preacher----------	50	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.37
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.88

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
135:							
Bohannon-----------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
						Depth to bedrock	0.84
136:							
Preacher-----------	35	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.50
						Too acid	0.88
Bohannon-----------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.76
						Depth to bedrock	0.84
Slickrock----------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.76
						Hard to reclaim (rock fragments)	0.92
137:							
Price--------------	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Hard to reclaim (rock fragments)	0.50
						Rock fragments	0.88
						Too acid	0.99
MacDunn------------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too clayey	0.00
						Too acid	0.95

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
137:							
Ritner	20	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too clayey	0.00
						Too acid	0.95
						Depth to bedrock	0.99
138:							
Riverwash	100	Not rated		Not rated		Not rated	
139:							
Salem	91	Fair		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Bottom layer	0.25	Thickest layer	0.00	Rock fragments	0.00
140:							
Santiam	91	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.38
						Too acid	0.95
141:							
Santiam	93	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.04
						Wetness depth	0.38
						Too acid	0.95
142:							
Sevencedars	55	Fair		Poor		Poor	
		Thickest layer	0.12	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.12	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
Newanna	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.76
						Depth to bedrock	0.79

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
143:							
Sevencedars--------	35	Fair		Poor		Poor	
		Thickest layer	0.12	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.12	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Slope	0.37
						Too acid	0.88
Newanna------------	30	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
						Depth to bedrock	0.79
Woodspoint---------	25	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Hard to reclaim (rock fragments)	0.00
		Thickest layer	0.00	Thickest layer	0.00		
						Rock fragments	0.00
						Slope	0.37
						Too acid	0.59
144:							
Sevencedars--------	50	Fair		Poor		Poor	
		Thickest layer	0.12	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.12	Thickest layer	0.00	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
Newanna------------	20	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.76
						Depth to bedrock	0.79
Woodspoint---------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
						Too acid	0.59

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
145:							
Shivigny	45	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.76
Honeygrove, basalt bedrock	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
146:							
Slickrock	90	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.76
						Hard to reclaim (rock fragments)	0.92
147:							
Steiwer	49	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.21
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.99
Chehulpum	41	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.00
		Thickest layer	0.00	Thickest layer	0.00		
148:							
Steiwer	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.21
						Too acid	0.99
Chehulpum	40	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
149:							
Steiwer------------	50	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.21
						Too acid	0.99
Chehulpum----------	39	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.00
150:							
Treharne-----------	35	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.29
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.54
						Too acid	0.88
Eilertsen----------	30	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Too acid	0.76
		Thickest layer	0.00	Thickest layer	0.00		
Zyzzug-------------	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.99
151:							
Valsetz------------	55	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Slope	0.37
						Too acid	0.59
						Depth to bedrock	0.90
Yellowstone--------	30	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.00
						Slope	0.37
						Too acid	0.76
152:							
Valsetz------------	65	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.59
						Depth to bedrock	0.90

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
152:							
Yellowstone	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.76
153:							
Valsetz	65	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too acid	0.59
						Depth to bedrock	0.90
Yellowstone	20	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
						Too acid	0.76
154:							
Verboort	97	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
155:							
Waldo	95	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
156:							
Waldo, high precipitation	95	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
157:							
Wapato	89	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.93
158:							
Wapato, high precipitation	95	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.93

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53
						Too acid	0.92
Willakenzie	33	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
161:							
Wellsdale	54	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.53
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.92
Willakenzie	33	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.71
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.99
Dupee	10	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.76
162:							
Wellsdale, north slopes	60	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53
						Too acid	0.92
Willakenzie, north slopes	27	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
Dupee, north slopes	10	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.00
		Thickest layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Slope	0.00
						Too acid	0.76

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
163:							
Willakenzie--------	83	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Depth to bedrock	0.71
		Thickest layer	0.00	Thickest layer	0.00	Too acid	0.99
164:							
Willakenzie--------	85	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
165:							
Willakenzie--------	86	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
166:							
Willakenzie--------	79	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
167:							
Willakenzie, south slopes------------	78	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
Wellsdale, south slopes------------	15	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53
						Too acid	0.92
168:							
Willakenzie--------	79	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.71
						Too acid	0.99
Wellsdale----------	15	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.53
						Too acid	0.92

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
169:							
Willamette---------	95	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		
170:							
Willamette---------	84	Poor		Poor		Good	
		Bottom layer	0.00	Bottom layer	0.00		
		Thickest layer	0.00	Thickest layer	0.00		
171:							
Willamette---------	97	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00		
172:							
Witham-------------	79	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
173:							
Witham-------------	75	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Too clayey	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.00
						Slope	0.00
174:							
Witzel-------------	46	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.00
Ritner-------------	44	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Too clayey	0.00
						Too acid	0.95
						Depth to bedrock	0.99
175:							
Witzel-------------	46	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Thickest layer	0.00	Thickest layer	0.00	Depth to bedrock	0.00
						Slope	0.00

Table 20.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
175:							
Ritner-------------	44	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Rock fragments	0.00
		Bottom layer	0.00	Thickest layer	0.00	Slope	0.00
						Too clayey	0.00
						Too acid	0.95
						Depth to bedrock	0.99
176:							
Witzel-------------	46	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Depth to bedrock	0.00
Ritner-------------	44	Poor		Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00	Slope	0.00
		Bottom layer	0.00	Thickest layer	0.00	Rock fragments	0.00
						Too clayey	0.00
						Too acid	0.95
						Depth to bedrock	0.99
177:							
Woodburn-----------	92	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.62
		Thickest layer	0.00	Thickest layer	0.00		
178:							
Woodburn-----------	92	Poor		Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00	Wetness depth	0.62
		Thickest layer	0.00	Thickest layer	0.00		
179:							
Woodburn-----------	94	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.62
180:							
Woodburn-----------	95	Poor		Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00	Slope	0.00
		Thickest layer	0.00	Thickest layer	0.00	Wetness depth	0.62

Table 21.--Ponds and Embankments

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Abiqua	89	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.07	Depth to water	1.00
2:							
Abiqua	84	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.07	Depth to water	1.00
		Slope	0.08				
3:							
Abiqua, high precipitation	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.07	Depth to water	1.00
4:							
Abiqua, high precipitation	95	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.07	Depth to water	1.00
		Slope	0.08				
5:							
Abiqua, rarely flooded	86	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.07	Depth to water	1.00
6:							
Alsea	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to saturated zone	0.17
				Depth to saturated zone	0.62	Cutbanks cave	0.10
				Seepage	0.04		
7:							
Alsea, rarely flooded	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to saturated zone	0.17
				Depth to saturated zone	0.62	Cutbanks cave	0.10
				Seepage	0.04		
8:							
Amity	94	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.94		
9:							
Apt	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.01	Depth to water	1.00
		Seepage	0.05				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9:							
McDuff	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.61	Depth to water	1.00
		Seepage	0.05	Piping	0.29		
		Depth to bedrock	0.02				
10:							
Apt	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.01	Depth to water	1.00
		Seepage	0.05				
McDuff	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.61	Depth to water	1.00
		Seepage	0.05	Piping	0.29		
		Depth to bedrock	0.02				
11:							
Aquents	97	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.30	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.38		
12:							
Awbrig	87	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.03	Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Hard to pack	0.19		
13:							
Bashaw, nonflooded	89	Somewhat limited		Very limited		Very limited	
		Slope	0.68	Depth to saturated zone	1.00	Slow refill	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
14:							
Bashaw, flooded	90	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
				Ponding	1.00		
15:							
Bashaw, nonflooded	87	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
				Ponding	1.00		
16:							
Bashaw, nonflooded	87	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
				Ponding	1.00		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
17:							
Bellpine-----------	68	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Hard to pack	0.01		
		Seepage	0.04				
Jory, sedimentary bedrock-----------	24	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
18:							
Bellpine-----------	51	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Hard to pack	0.01		
		Seepage	0.04				
Jory, sedimentary bedrock-----------	42	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
19:							
Bellpine-----------	52	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Hard to pack	0.01		
		Seepage	0.04				
Jory, sedimentary bedrock-----------	43	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
20:							
Bellpine-----------	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Hard to pack	0.01		
		Seepage	0.04				
Jory, sedimentary bedrock-----------	42	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
21:							
Blachly------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.25	Depth to water	1.00
		Seepage	0.05				
Kilowan------------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.83	Depth to water	1.00
		Depth to bedrock	0.09	Piping	0.07		
		Seepage	0.05				
22:							
Blachly------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.25	Depth to water	1.00
		Seepage	0.05				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
22:							
Kilowan	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.83	Depth to water	1.00
		Depth to bedrock	0.09	Piping	0.07		
		Seepage	0.05				
23:							
Bohannon	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.19				
		Depth to bedrock	0.05				
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.81	Thin layer	0.04		
		Depth to bedrock	0.01				
24:							
Bohannon	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.19				
		Depth to bedrock	0.05				
Preacher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.81	Thin layer	0.04		
		Depth to bedrock	0.01				
25:							
Briedwell	84	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Seepage	0.38	Depth to water	1.00
26:							
Briedwell	94	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.38	Depth to water	1.00
		Seepage	0.70				
27:							
Burntwoods	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.50	Depth to water	1.00
		Seepage	0.95	Large stones content	0.20		
Oldblue	40	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.99				
28:							
Camas	87	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.50	Depth to water	1.00
29:							
Camas, rarely flooded	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.50	Depth to water	1.00

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30:							
Caterl	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.75	Depth to water	1.00
		Seepage	0.95	Large stones content	0.19		
		Depth to bedrock	0.02	Thin layer	0.02		
Laderly	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.95	Depth to water	1.00
		Seepage	0.95	Seepage	0.62		
		Depth to bedrock	0.61	Thin layer	0.61		
Romanose	20	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.99		
				Seepage	0.50		
31:							
Caterl	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.75	Depth to water	1.00
		Seepage	0.95	Large stones content	0.19		
		Depth to bedrock	0.02	Thin layer	0.02		
Laderly	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.95	Depth to water	1.00
		Seepage	0.95	Seepage	0.62		
		Depth to bedrock	0.61	Thin layer	0.61		
Romanose	25	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.99		
				Seepage	0.50		
32:							
Caterl	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.75	Depth to water	1.00
		Seepage	0.95	Large stones content	0.19		
		Depth to bedrock	0.02	Thin layer	0.02		
Murtip	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.01	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
Giveout	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.81				
		Depth to bedrock	0.03				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
33:							
Caterl	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.75	Depth to water	1.00
		Seepage	0.95	Large stones content	0.19		
		Depth to bedrock	0.02	Thin layer	0.02		
Murtip	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.01	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
Laderly	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.95	Depth to water	1.00
		Seepage	0.95	Seepage	0.62		
		Depth to bedrock	0.61	Thin layer	0.61		
34:							
Chapman	92	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.12		
35:							
Chapman, high precipitation	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.12		
36:							
Chehalem	91	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.04		
37:							
Chehalem	92	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.30
		Seepage	0.70			Cutbanks cave	0.10
				Piping	0.04		
38:							
Chehalis	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.91	Depth to water	1.00
39:							
Chehalis, high precipitation	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
40:							
Chehalis	92	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.84	Depth to water	1.00
41:							
Chintimini	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.19	Depth to water	1.00
		Seepage	0.81	Large stones content	0.03		
		Depth to bedrock	0.08				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
41:							
Blodgett	40	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.29		
42:							
Chintimini	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.19	Depth to water	1.00
		Seepage	0.81	Large stones content	0.03		
		Depth to bedrock	0.08				
Blodgett	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.29		
Fiverivers	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.57				
		Depth to bedrock	0.03				
43:							
Chintimini	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.19	Depth to water	1.00
		Seepage	0.81	Large stones content	0.03		
		Depth to bedrock	0.08				
Grassmountain	45	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.30				
44:							
Chismore	55	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.05	Depth to saturated zone	1.00	Slow refill	0.95
						Cutbanks cave	0.10
				Piping	0.28		
Pyburn	30	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.01	Depth to saturated zone	1.00	Slow refill	0.95
						Cutbanks cave	0.10
				Ponding	1.00		
45:							
Chismore	60	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.95
		Seepage	0.05			Cutbanks cave	0.10
				Piping	0.28		
Pyburn	25	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.32	Depth to saturated zone	1.00	Slow refill	0.95
		Seepage	0.01			Cutbanks cave	0.10
				Ponding	1.00		
46:							
Cloquato	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
47:							
Cloquato, high precipitation------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
48:							
Coburg, occasionally flooded------------	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	0.99	Slow refill	0.96
				Piping	0.38	Cutbanks cave	0.10
						Depth to saturated zone	0.01
Coburg, rarely flooded------------	44	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	0.99	Slow refill	0.96
				Piping	0.26	Cutbanks cave	0.10
						Depth to saturated zone	0.01
49:							
Coburg--------------	88	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.93	Cutbanks cave	0.10
				Piping	0.55	Depth to saturated zone	0.03
50:							
Coburg, rarely flooded------------	89	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	0.99	Slow refill	0.96
				Piping	0.26	Cutbanks cave	0.10
						Depth to saturated zone	0.01
51:							
Concord-------------	92	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Piping	0.29		
52:							
Conser--------------	86	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.58		
53:							
Dayton--------------	93	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
54:							
Dayton, clay substratum	92	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Hard to pack	0.67		
55:							
Digger	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.57	Thin layer	0.56		
		Depth to bedrock	0.16	Large stones content	0.32		
Bohannon	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.19				
		Depth to bedrock	0.05				
56:							
Digger	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.57	Thin layer	0.56		
		Depth to bedrock	0.16	Large stones content	0.32		
Remote	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.25	Depth to water	1.00
		Seepage	0.70				
Umpcoos	20	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.68		
				Seepage	0.25		
57:							
Digger	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.57	Thin layer	0.56		
		Depth to bedrock	0.16	Large stones content	0.32		
Umpcoos	35	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.68		
				Seepage	0.25		
Remote	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.25	Depth to water	1.00
		Seepage	0.70				
58:							
Dixonville	46	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.05	Hard to pack	0.29		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58:							
Gellatly-----------	43	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.16	Depth to water	1.00
		Seepage	0.02				
59:							
Dixonville----------	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.05	Hard to pack	0.29		
Gellatly-----------	33	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.16	Depth to water	1.00
		Seepage	0.02				
60:							
Dixonville----------	34	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.05	Hard to pack	0.29		
Gellatly-----------	28	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Hard to pack	0.16	Depth to water	1.00
		Seepage	0.02				
Witham--------------	20	Somewhat limited		Very limited		Very limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Hard to pack	1.00		
61:							
Dupee---------------	86	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05			Cutbanks cave	0.10
				Piping	0.19		
62:							
Dupee---------------	87	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05			Cutbanks cave	0.10
				Piping	0.19		
63:							
Elsie---------------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Slope	0.08				
64:							
Elsie---------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70				
65:							
Fiverivers----------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.57				
		Depth to bedrock	0.03				
Grassmountain-------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.30				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
65:							
Chintimini----------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.19	Depth to water	1.00
		Seepage	0.81	Large stones content	0.03		
		Depth to bedrock	0.08				
66:							
Fluvents-----------	53	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.38	Depth to water	1.00
Fluvaquents---------	37	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
67:							
Fluvents, high precipitation------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.38	Depth to water	1.00
Fluvaquents, high precipitation------	45	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
68:							
Formader------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.93	Depth to water	1.00
		Seepage	0.43				
		Depth to bedrock	0.19				
Hemcross------------	35	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.19				
69:							
Formader------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.93	Depth to water	1.00
		Seepage	0.43				
		Depth to bedrock	0.19				
Hemcross------------	30	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.19				
70:							
Formader------------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.93	Depth to water	1.00
		Seepage	0.43				
		Depth to bedrock	0.19				
Klistan-------------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.99	Large stones content	0.16		
		Depth to bedrock	0.01				
				Thin layer	0.01		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70:							
Hemcross	20	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.19				
71:							
Gelderman	47	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.88	Depth to water	1.00
		Depth to bedrock	0.11	Thin layer	0.86		
		Seepage	0.03				
Jory, basalt bedrock	42	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				
72:							
Goodin	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Thin layer	0.88	Depth to water	1.00
		Depth to bedrock	0.13	Piping	0.11		
		Seepage	0.03				
Dupee	21	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05			Cutbanks cave	0.10
				Piping	0.19		
Chehulpum	20	Somewhat limited		Very limited		Very limited	
		Slope	0.92	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.78	Piping	1.00		
73:							
Goodin	31	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.88	Depth to water	1.00
		Depth to bedrock	0.13	Piping	0.11		
		Seepage	0.03				
Chehulpum	21	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.78	Piping	1.00		
Dupee	21	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05			Cutbanks cave	0.10
				Piping	0.19		
74:							
Grassmountain	40	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.30				
Fiverivers	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.57				
		Depth to bedrock	0.03				
Chintimini	15	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.19	Depth to water	1.00
		Seepage	0.81	Large stones content	0.03		
		Depth to bedrock	0.08				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
75:							
Harslow	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74	Seepage	0.50		
		Seepage	0.70	Large stones content	0.46		
Kilchis	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	0.96		
Rock outcrop	15	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
76:							
Harslow	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74	Seepage	0.50		
		Seepage	0.70	Large stones content	0.46		
Klistan	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.99	Large stones content	0.16		
		Depth to bedrock	0.01	Thin layer	0.01		
Rock outcrop	20	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
77:							
Hazelair	81	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.97
		Depth to bedrock	0.11	Thin layer	0.86	Cutbanks cave	0.10
				Hard to pack	0.19		
78:							
Hazelair	81	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.97
		Depth to bedrock	0.11	Thin layer	0.86	Cutbanks cave	0.10
				Hard to pack	0.19		
79:							
Hazelair	81	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.97
		Depth to bedrock	0.11	Thin layer	0.86	Cutbanks cave	0.10
				Hard to pack	0.19		
80:							
Hazelair	82	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.97
		Depth to bedrock	0.03	Hard to pack	0.85	Cutbanks cave	0.10
				Thin layer	0.66		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
81:							
Helmick-------------	86	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.97
				Hard to pack	0.96	Cutbanks cave	0.10
82:							
Helvetia------------	94	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.53	Piping	0.12	Depth to saturated zone	0.81
		Slope	0.32			Slow refill	0.47
						Cutbanks cave	0.10
83:							
Hemcross------------	55	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.19				
Klistan-------------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.99	Large stones content	0.16		
		Depth to bedrock	0.01	Thin layer	0.01		
84:							
Hemcross------------	45	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.19				
Klistan-------------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.99	Large stones content	0.16		
		Depth to bedrock	0.01	Thin layer	0.01		
85:							
Holcomb-------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
86:							
Honeygrove----------	50	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.05				
Peavine, sedimentary bedrock------------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.05	Piping	0.21		
		Depth to bedrock	0.03				
87:							
Honeygrove----------	45	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.05				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
87:							
Peavine, sedimentary bedrock	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.05	Piping	0.21		
		Depth to bedrock	0.03				
88:							
Honeygrove, basalt bedrock	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.01	Depth to water	1.00
		Seepage	0.05				
Peavine, basalt bedrock	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.61	Depth to water	1.00
		Depth to bedrock	0.02	Piping	0.05		
		Seepage	0.01				
89:							
Honeygrove, basalt bedrock	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.01	Depth to water	1.00
		Seepage	0.05				
Peavine, basalt bedrock	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.61	Depth to water	1.00
		Depth to bedrock	0.02	Piping	0.05		
		Seepage	0.01				
90:							
Honeygrove, basalt bedrock	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.01	Depth to water	1.00
		Seepage	0.05				
Shivigny	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.12	Depth to water	1.00
		Seepage	0.05	Large stones content	0.05		
91:							
Jory, basalt bedrock	86	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				
92:							
Jory, basalt bedrock	86	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				
93:							
Jory, basalt bedrock	84	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
94:							
Jory, sedimentary bedrock	81	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
95:							
Jory, sedimentary bedrock	81	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
96:							
Jory, sedimentary bedrock	86	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
97:							
Jory, sedimentary bedrock	72	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Hard to pack	0.14	Depth to water	1.00
		Seepage	0.53				
Dupee	22	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05			Cutbanks cave	0.10
				Piping	0.19		
98:							
Jory, basalt bedrock	57	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				
Gelderman	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.88	Depth to water	1.00
		Depth to bedrock	0.11	Thin layer	0.86		
		Seepage	0.03				
99:							
Jory, basalt bedrock	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				
Nekia	32	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.90	Depth to water	1.00
		Depth to bedrock	0.66	Thin layer	0.66		
		Seepage	0.03				
100:							
Jory, basalt bedrock	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.38	Depth to water	1.00
		Seepage	0.03				
Nekia	32	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.90	Depth to water	1.00
		Depth to bedrock	0.66	Thin layer	0.66		
		Seepage	0.03				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
101:							
Kirkendall	40	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.19	Piping	1.00	Slow refill	0.95
				Depth to saturated zone	0.46	Depth to saturated zone	0.24
						Cutbanks cave	0.10
Nekoma	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Cutbanks cave	1.00
						Depth to saturated zone	0.81
Quosatana	15	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.05	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	1.00		
102:							
Klistan	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.99	Large stones content	0.16		
		Depth to bedrock	0.01				
				Thin layer	0.01		
Harslow	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74	Seepage	0.50		
		Seepage	0.70	Large stones content	0.46		
103:							
Klistan	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.62	Depth to water	1.00
		Seepage	0.99	Large stones content	0.16		
		Depth to bedrock	0.01				
				Thin layer	0.01		
Harslow	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74	Seepage	0.50		
		Seepage	0.70	Large stones content	0.46		
Hemcross	20	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.19				
104:							
Laderly	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.95	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.61	Seepage	0.62		
				Thin layer	0.61		
Murtip	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.01	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104:							
Giveout	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.81				
		Depth to bedrock	0.03				
105:							
Linslaw	91	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.37		
106:							
Linslaw	92	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Slope	0.32				
				Piping	0.37		
107:							
Lurnick	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones content	1.00	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.46	Thin layer	0.66		
				Seepage	0.38		
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
				Thin layer	1.00		
				Seepage	0.38		
108:							
Lurnick	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones content	1.00	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.46	Thin layer	0.66		
				Seepage	0.38		
Luckiamute	30	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
				Thin layer	1.00		
				Seepage	0.38		
Maryspeak	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
		Slope	1.00				
109:							
MacDunn	44	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.38	Depth to water	1.00
		Seepage	0.03	Large stones content	0.25		
		Depth to bedrock	0.01				
				Thin layer	0.08		
Price	28	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.03				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
109:							
Ritner	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.52				
		Seepage	0.03				
110:							
Malabon	89	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
111:							
Malabon, rarely flooded	89	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.51	Depth to water	1.00
112:							
Maryspeak	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
		Slope	1.00				
113:							
McAlpin	82	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.97
						Cutbanks cave	0.10
114:							
McAlpin	84	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.97
		Slope	0.08			Cutbanks cave	0.10
115:							
McAlpin, high precipitation	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.97
						Cutbanks cave	0.10
116:							
McAlpin, high precipitation	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.97
		Slope	0.08			Cutbanks cave	0.10
117:							
McAlpin, rarely flooded	81	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.97
						Cutbanks cave	0.10
118:							
McBee	92	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.35		
119:							
McBee, nonflooded	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.35		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
120:							
Meda	40	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Treharne	25	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Depth to saturated zone	1.00	Slow refill	0.70
						Cutbanks cave	0.10
				Piping	0.99		
Wasson	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.01		
121:							
Mulkey	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.95				
122:							
Mulkey	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.95				
123:							
Murtip	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.01	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
Giveout	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.66	Depth to water	1.00
		Seepage	0.81				
		Depth to bedrock	0.03				
Laderly	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.95	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.61	Seepage	0.62		
				Thin layer	0.61		
124:							
Nekoma	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Cutbanks cave	1.00
						Depth to saturated zone	0.81
Fluvaquents	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
125:							
Newberg	92	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.17	Depth to water	1.00

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
126:							
Newberg, high precipitation------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.17	Depth to water	1.00
127:							
Newberg------------	92	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.17	Depth to water	1.00
128:							
Oldblue------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.99				
Burntwoods----------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.50	Depth to water	1.00
		Seepage	0.95	Large stones content	0.20		
129:							
Panther------------	81	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.68	Depth to saturated zone	1.00	Slow refill	0.97
		Depth to bedrock	0.01	Hard to pack	0.66	Cutbanks cave	0.10
				Thin layer	0.29		
130:							
Pengra-------------	83	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	0.97
		Seepage	0.03	Hard to pack	0.47	Cutbanks cave	0.10
131:							
Philomath-----------	76	Somewhat limited		Very limited		Very limited	
		Slope	0.92	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.66	Hard to pack	0.20		
132:							
Pilchuck------------	79	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.22	Depth to water	1.00
133:							
Pits----------------	100	Not rated		Not rated		Not rated	
134:							
Preacher------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.81	Thin layer	0.04		
		Depth to bedrock	0.01				
Blachly------------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.25	Depth to water	1.00
		Seepage	0.05				
Bohannon------------	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.19				
		Depth to bedrock	0.05				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
135:							
Preacher------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.81	Thin layer	0.04		
		Depth to bedrock	0.01				
Bohannon------------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.19				
		Depth to bedrock	0.05				
136:							
Preacher------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.81	Thin layer	0.04		
		Depth to bedrock	0.01				
Bohannon------------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.19				
		Depth to bedrock	0.05				
Slickrock-----------	20	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
137:							
Price---------------	40	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.03				
MacDunn-------------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.38	Depth to water	1.00
		Seepage	0.03	Large stones content	0.25		
		Depth to bedrock	0.01	Thin layer	0.08		
Ritner--------------	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.52				
		Seepage	0.03				
138:							
Riverwash-----------	100	Not limited		Not rated		Not rated	
139:							
Salem---------------	91	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.25	Depth to water	1.00
140:							
Santiam-------------	91	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.32	Depth to saturated zone	1.00	Slow refill	0.96
		Seepage	0.04			Cutbanks cave	0.10
				Piping	0.09		
141:							
Santiam-------------	93	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.96
		Seepage	0.04			Cutbanks cave	0.10
				Piping	0.09		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
142:							
Sevencedars	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.12	Depth to water	1.00
		Seepage	0.95				
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.77	Thin layer	0.77		
				Seepage	0.38		
143:							
Sevencedars	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.12	Depth to water	1.00
		Seepage	0.95				
Newanna	30	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.77	Thin layer	0.77		
				Seepage	0.38		
Woodspoint	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.22	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.22				
144:							
Sevencedars	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.12	Depth to water	1.00
		Seepage	0.95				
Newanna	20	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.77	Thin layer	0.77		
				Seepage	0.38		
Woodspoint	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.22	Depth to water	1.00
		Seepage	0.95				
		Depth to bedrock	0.22				
145:							
Shivigny	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.12	Depth to water	1.00
		Seepage	0.05	Large stones content	0.05		
Honeygrove, basalt bedrock	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.01	Depth to water	1.00
		Seepage	0.05				
146:							
Slickrock	90	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
147:							
Steiwer	49	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Piping	0.87		
		Seepage	0.03				
Chehulpum	41	Somewhat limited		Very limited		Very limited	
		Slope	0.92	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.78	Piping	1.00		
148:							
Steiwer	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Piping	0.87		
		Seepage	0.03				
Chehulpum	40	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.78	Piping	1.00		
149:							
Steiwer	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23	Piping	0.87		
		Seepage	0.03				
Chehulpum	39	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.78	Piping	1.00		
150:							
Treharne	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Depth to saturated zone	1.00	Slow refill	0.70
						Cutbanks cave	0.10
				Piping	0.99		
Eilertsen	30	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Depth to saturated zone	0.68
		Slope	0.08	Depth to saturated zone	0.02		
						Slow refill	0.30
						Cutbanks cave	0.10
Zyzzug	20	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Depth to saturated zone	1.00	Cutbanks cave	0.10
						Slow refill	0.05
				Piping	0.91		
151:							
Valsetz	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones content	1.00	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.69	Thin layer	0.70		
				Seepage	0.25		
Yellowstone	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Large stones content	1.00	Depth to water	1.00
		Slope	1.00				
				Thin layer	1.00		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
152:							
Valsetz-------------	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones content	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.70		
		Depth to bedrock	0.69	Seepage	0.25		
Yellowstone---------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
153:							
Valsetz-------------	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones content	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.70		
		Depth to bedrock	0.69	Seepage	0.25		
Yellowstone---------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
154:							
Verboort------------	97	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.30
				Piping	0.05	Cutbanks cave	0.10
155:							
Waldo---------------	95	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Hard to pack	0.05		
156:							
Waldo, high precipitation------	95	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Hard to pack	0.05		
157:							
Wapato--------------	89	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Piping	0.18		
158:							
Wapato, high precipitation------	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Ponding	1.00	Cutbanks cave	0.10
				Piping	0.32		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
159:							
Water	100	Not rated		Not rated		Not rated	
160:							
Wellsdale	60	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.99	Slow refill	0.97
		Seepage	0.03	Piping	0.87	Cutbanks cave	0.10
						Depth to saturated zone	0.01
Willakenzie	33	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
161:							
Wellsdale	54	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.92	Depth to saturated zone	0.99	Slow refill	0.97
		Seepage	0.03	Piping	0.87	Cutbanks cave	0.10
						Depth to saturated zone	0.01
Willakenzie	33	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
Dupee	10	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.32	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05	Piping	0.19	Cutbanks cave	0.10
162:							
Wellsdale, north slopes	60	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.99	Slow refill	0.97
		Seepage	0.03	Piping	0.87	Cutbanks cave	0.10
						Depth to saturated zone	0.01
Willakenzie, north slopes	27	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
Dupee, north slopes	10	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.93
		Seepage	0.05	Piping	0.19	Cutbanks cave	0.10
163:							
Willakenzie	83	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
164:							
Willakenzie	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
165:							
Willakenzie	86	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
166:							
Willakenzie	79	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
167:							
Willakenzie, south slopes	78	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
Wellsdale, south slopes	15	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.99	Slow refill	0.97
		Seepage	0.03			Cutbanks cave	0.10
				Piping	0.87	Depth to saturated zone	0.01
168:							
Willakenzie	79	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	Depth to water	1.00
		Depth to bedrock	0.08	Thin layer	0.81		
		Seepage	0.03				
Wellsdale	15	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.99	Slow refill	0.97
		Seepage	0.03			Cutbanks cave	0.10
				Piping	0.87	Depth to saturated zone	0.01
169:							
Willamette	95	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.75	Depth to water	1.00
170:							
Willamette	84	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.75	Depth to water	1.00
		Seepage	0.70				
171:							
Willamette	97	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.75	Depth to water	1.00
		Seepage	0.70				

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
172:							
Witham	79	Somewhat limited		Very limited		Very limited	
		Slope	0.92	Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Hard to pack	1.00		
173:							
Witham	75	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Hard to pack	1.00		
174:							
Witzel	46	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.92	Large stones content	1.00		
Ritner	44	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.52				
		Seepage	0.03				
175:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	1.00		
Ritner	44	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.52				
		Seepage	0.03				
176:							
Witzel	46	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones content	1.00		
Ritner	44	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.52				
		Seepage	0.03				
177:							
Woodburn	92	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	0.10
						Depth to saturated zone	0.01
				Piping	0.99		
178:							
Woodburn	92	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	0.10
		Slope	0.92			Depth to saturated zone	0.01
				Piping	0.99		

Table 21.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
179:							
Woodburn-----------	94	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.99	Cutbanks cave	0.10
		Seepage	1.00	Piping	0.99	Depth to saturated zone	0.01
180:							
Woodburn-----------	95	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.99	Cutbanks cave	0.10
		Seepage	1.00	Piping	0.99	Depth to saturated zone	0.01

Table 22.--Engineering Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
1:												
Abiqua----------	0-6	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	6-15	Silty clay loam	ML, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	15-25	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	25-36	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	36-44	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	44-60	Silty clay, silty clay loam, clay, very gravelly silty clay loam, gravelly clay loam	GC, CH, CL	A-2, A-7	0	0-15	40-100	35-95	35-95	30-90	40-55	15-30
2:												
Abiqua----------	0-6	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	6-15	Silty clay loam	ML, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	15-25	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	25-36	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	36-44	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	44-60	Silty clay, silty clay loam, clay, very gravelly silty clay loam, gravelly clay loam	GC, CH, CL	A-2, A-7	0	0-15	40-100	35-95	35-95	30-90	40-55	15-30
3:												
Abiqua, high precipitation--	0-6	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	6-15	Silty clay loam	ML, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	15-25	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	25-36	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	36-44	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	44-60	Silty clay, silty clay loam, clay, very gravelly silty clay loam, gravelly clay loam	GC, CH, CL	A-2, A-7	0	0-15	40-100	35-95	35-95	30-90	40-55	15-30

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
4:												
Abiqua, high precipitation--	0-6	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	6-15	Silty clay loam	ML, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	15-25	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	25-36	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	36-44	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	44-60	Silty clay, silty clay loam, clay, very gravelly silty clay loam, gravelly clay loam	GC, CH, CL	A-2, A-7	0	0-15	40-100	35-95	35-95	30-90	40-55	15-30
5:												
Abiqua, rarely flooded--------	0-6	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	6-15	Silty clay loam	ML, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	15-25	Silty clay loam	CL, ML	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	10-20
	25-36	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	36-44	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	85-100	80-100	75-100	70-95	40-55	15-30
	44-60	Silty clay, silty clay loam, clay, very gravelly silty clay loam, gravelly clay loam	GC, CH, CL	A-2, A-7	0	0-15	40-100	35-95	35-95	30-90	40-55	15-30
6:												
Alsea-----------	0-8	Loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-30	5-15
	8-12	Loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-30	5-15
	12-16	Clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	70-80	25-35	10-15
	16-25	Clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	70-80	25-35	10-15
	25-34	Clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	70-80	25-35	10-15
	34-52	Sandy loam, clay loam, loam	SC-SM, CL, CL-ML	A-6, A-2, A-4	0	0	95-100	90-100	65-90	35-70	20-40	5-20
	52-67	Sandy loam, loam	CL, SC-SM	A-1, A-2, A-4	0	0	85-100	80-100	50-85	25-60	15-30	5-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
7:												
Alsea, rarely flooded--------	0-8	Loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-30	5-15
	8-12	Loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-30	5-15
	12-16	Clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	70-80	25-35	10-15
	16-25	Clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	70-80	25-35	10-15
	25-34	Clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	70-80	25-35	10-15
	34-52	Sandy loam, clay loam, loam	CL, CL-ML, SC-SM	A-6, A-2, A-4	0	0	95-100	90-100	65-90	35-70	20-40	5-20
	52-67	Sandy loam, loam	CL, SC-SM	A-1, A-2, A-4	0	0	85-100	80-100	50-85	25-60	15-30	5-15
8:												
Amity-----------	0-7	Silt loam	ML, CL-ML	A-4, A-6	0	0	98-100	95-100	95-100	85-100	30-40	5-15
	7-16	Silt loam	ML, CL-ML	A-4, A-6	0	0	98-100	95-100	95-100	85-100	30-40	5-15
	16-22	Silt loam, silty clay loam	ML, CL	A-4, A-6	0	0	100	95-100	95-100	85-100	30-40	5-15
	22-28	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	35-45	15-20
	28-35	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	35-45	15-20
	35-72	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	5-15
9:												
Apt-------------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Silty clay loam	CL	A-4, A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	6-11	Silty clay loam, paragravelly silty clay loam	CL	A-4, A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	11-18	Clay, silty clay, very paragravelly silty clay	CH, CL	A-7	0	0	85-100	80-100	75-100	70-95	45-60	20-30
	18-27	Very paragravelly silty clay, clay, silty clay	CH, CL	A-7	0	0	85-100	80-100	75-100	70-95	45-60	20-30
	27-37	Clay, silty clay, very paragravelly silty clay	CH, CL	A-7	0	0	85-100	80-100	75-95	65-90	45-60	20-30
	37-51	Clay, silty clay, very paragravelly silty clay	CH, CL	A-7	0	0	85-100	80-100	75-95	65-90	45-60	20-30
	51-66	Extremely paragravelly silty clay, paragravelly clay, silty clay loam	CL	A-7, A-6	0	0	85-100	80-100	75-95	65-90	35-45	15-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
9:												
McDuff----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silty clay loam	CL	A-6, A-4	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	9-17	Silty clay loam, paragravelly silty clay loam	CL	A-6	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	17-23	Silty clay, clay, paragravelly clay	CL, CH	A-7	0	0	95-100	90-100	85-100	75-95	45-60	20-30
	23-30	Silty clay, clay, paragravelly clay	CH, CL	A-7	0	0	95-100	90-100	85-100	75-95	45-60	20-30
	30-37	Silty clay, extremely paragravelly clay, extremely paragravelly silty clay	CL, CH	A-7	0	0	85-100	85-100	75-100	65-95	45-60	20-30
	37-47	Weathered bedrock			---	---	---	---	---	---	---	---
10:												
Apt-------------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Silty clay loam	CL	A-4, A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	6-11	Silty clay loam, paragravelly silty clay loam	CL	A-4, A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	11-18	Clay, silty clay, very paragravelly silty clay	CH, CL	A-7	0	0	85-100	80-100	75-100	70-95	45-60	20-30
	18-27	Very paragravelly silty clay, clay, silty clay	CH, CL	A-7	0	0	85-100	80-100	75-100	70-95	45-60	20-30
	27-37	Clay, silty clay, very paragravelly silty clay	CH, CL	A-7	0	0	85-100	80-100	75-95	65-90	45-60	20-30
	37-51	Clay, silty clay, very paragravelly silty clay	CH, CL	A-7	0	0	85-100	80-100	75-95	65-90	45-60	20-30
	51-66	Extremely paragravelly silty clay, paragravelly clay, silty clay loam	CL	A-7, A-6	0	0	85-100	80-100	75-95	65-90	35-45	15-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
10:												
McDuff----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silty clay loam	CL	A-6, A-4	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	9-17	Silty clay loam, paragravelly silty clay loam	CL	A-6	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	17-23	Silty clay, clay, paragravelly clay	CL, CH	A-7	0	0	95-100	90-100	85-100	75-95	45-60	20-30
	23-30	Silty clay, clay, paragravelly clay	CH, CL	A-7	0	0	95-100	90-100	85-100	75-95	45-60	20-30
	30-37	Silty clay, extremely paragravelly clay, extremely paragravelly silty clay	CL, CH	A-7	0	0	85-100	85-100	75-100	65-95	45-60	20-30
	37-47	Weathered bedrock			---	---	---	---	---	---	---	---
11:												
Aquents---------	0-10	Silt loam	ML, CL, CL-ML	A-6, A-4	0	0	95-100	90-100	85-100	75-95	25-40	5-15
	10-40	Silty clay, clay, silty clay loam, silt loam	CH, CL	A-7, A-6, A-4	0	0	95-100	90-100	85-100	75-95	30-70	10-50
	40-60	Clay, silty clay, silty clay loam	CH, ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	75-95	40-90	10-60
12:												
Awbrig----------	0-2	Silty clay loam	ML	A-6, A-7, A-4	0	0	95-100	95-100	90-100	85-95	35-50	10-20
	2-7	Silty clay loam	ML	A-6, A-7, A-4	0	0	95-100	95-100	90-100	85-95	35-50	10-20
	7-18	Silty clay, clay	CH	A-7	0	0	95-100	90-100	90-100	80-95	55-70	30-45
	18-29	Silty clay, clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-70	30-45
	29-48	Silty clay loam	CH, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	40-55	15-30
	48-60	Silty clay loam, clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	80-100	70-95	35-50	10-25
13:												
Bashaw, nonflooded-----	0-3	Clay	CH	A-7	0	0	95-100	95-100	90-100	85-100	50-90	35-60
	3-14	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	14-31	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	31-48	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	48-60	Silty clay, clay, sandy clay	CH	A-7	0	0	95-100	90-100	75-100	55-95	60-90	35-60

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
14:												
Bashaw, flooded	0-3	Clay	CH	A-7	0	0	95-100	95-100	90-100	85-100	50-90	35-60
	3-14	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	14-31	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	31-48	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	48-60	Silty clay, clay, sandy clay	CH	A-7	0	0	95-100	90-100	75-100	55-95	60-90	35-60
15:												
Bashaw, nonflooded-----	0-3	Clay	CH	A-7	0	0	95-100	95-100	90-100	85-100	50-90	35-60
	3-14	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	14-31	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	31-48	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	48-60	Silty clay, clay, sandy clay	CH	A-7	0	0	95-100	90-100	75-100	55-95	60-90	35-60
16:												
Bashaw, nonflooded-----	0-3	Clay	CH	A-7	0	0	95-100	95-100	90-100	85-100	50-90	35-60
	3-14	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	14-31	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	31-48	Clay	CH	A-7	0	0	95-100	95-100	95-100	90-100	70-90	40-60
	48-60	Silty clay, clay, sandy clay	CH	A-7	0	0	95-100	90-100	75-100	55-95	60-90	35-60
17:												
Bellpine--------	0-6	Silty clay loam	ML, CL	A-7, A-6	0	0	100	100	95-100	85-95	40-50	15-20
	6-10	Silty clay, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-95	80-90	40-50	15-20
	10-20	Clay, silty clay, paragravelly clay, paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	20-26	Silty clay, paragravelly clay, clay, very paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
17:												
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65
18:												
Bellpine--------	0-6	Silty clay loam	ML, CL	A-7, A-6	0	0	100	100	95-100	85-95	40-50	15-20
	6-10	Silty clay, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-95	80-90	40-50	15-20
	10-20	Clay, silty clay, paragravelly clay, paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	20-26	Silty clay, paragravelly clay, clay, very paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
19:												
Bellpine--------	0-6	Silty clay loam	ML, CL	A-7, A-6	0	0	100	100	95-100	85-95	40-50	15-20
	6-10	Silty clay, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-95	80-90	40-50	15-20
	10-20	Clay, silty clay, paragravelly clay, paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	20-26	Silty clay, paragravelly clay, clay, very paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65
20:												
Bellpine--------	0-6	Silty clay loam	ML, CL	A-7, A-6	0	0	100	100	95-100	85-95	40-50	15-20
	6-10	Silty clay, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-95	80-90	40-50	15-20
	10-20	Clay, silty clay, paragravelly clay, paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	20-26	Silty clay, paragravelly clay, clay, very paragravelly silty clay	MH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-25
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
20:												
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65
21:												
Blachly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Loam	CL-ML, CL	A-4	0	0-10	80-100	75-100	70-90	55-70	20-30	5-10
	7-16	Clay loam, loam	CL	A-4, A-6	0	0-10	85-100	80-100	70-95	55-75	25-40	10-20
	16-27	Paragravelly silty clay, paragravelly silty clay loam, silty clay	CL	A-7, A-6	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	27-54	Silty clay, paragravelly silty clay, paragravelly silty clay loam	CL	A-7	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	54-65	Silty clay, paragravelly silty clay, paragravelly silty clay loam	CL	A-7	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	65-96	Paragravelly silty clay, silty clay, silty clay loam	CL	A-7, A-6	0	0-5	95-100	90-100	85-100	80-95	40-45	15-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
21:												
Kilowan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Paragravelly silty clay loam	CL	A-6, A-4	0	0-10	80-100	75-100	75-100	70-95	30-40	10-15
	8-14	Paragravelly silty clay, paragravelly silty clay loam	CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	15-20
	14-23	Paragravelly silty clay, paragravelly clay, paragravelly silty clay loam	CL	A-7	0	0	85-95	80-90	75-90	70-85	40-50	15-25
	23-31	Paragravelly silty clay, paragravelly clay, paragravelly silty clay loam	CL	A-7	0	0	85-95	80-90	75-90	70-85	40-50	15-25
	31-41	Weathered bedrock			---	---	---	---	---	---	---	---
22:												
Blachly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Loam	CL-ML, CL	A-4	0	0-10	80-100	75-100	70-90	55-70	20-30	5-10
	7-16	Clay loam, loam	CL	A-4, A-6	0	0-10	85-100	80-100	70-95	55-75	25-40	10-20
	16-27	Paragravelly silty clay, paragravelly silty clay loam, silty clay	CL	A-7, A-6	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	27-54	Silty clay, paragravelly silty clay, paragravelly silty clay loam	CL	A-7	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	54-65	Silty clay, paragravelly silty clay, paragravelly silty clay loam	CL	A-7	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	65-96	Paragravelly silty clay, silty clay, silty clay loam	CL	A-7, A-6	0	0-5	95-100	90-100	85-100	80-95	40-45	15-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
22:												
Kilowan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Paragravelly silty clay loam	CL	A-6, A-4	0	0-10	80-100	75-100	75-100	70-95	30-40	10-15
	8-14	Paragravelly silty clay, paragravelly silty clay loam	CL	A-7, A-6	0	0-10	85-100	80-100	75-100	70-95	35-45	15-20
	14-23	Paragravelly silty clay, paragravelly clay, paragravelly silty clay loam	CL	A-7	0	0	85-95	80-90	75-90	70-85	40-50	15-25
	23-31	Paragravelly silty clay, paragravelly clay, paragravelly silty clay loam	CL	A-7	0	0	85-95	80-90	75-90	70-85	40-50	15-25
	31-41	Weathered bedrock			---	---	---	---	---	---	---	---
23:												
Bohannon--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-10	Gravelly medial loam	GM	A-5	0	0-15	55-80	50-75	45-65	35-50	50-60	NP-5
	10-19	Gravelly loam	GC, SC, SC-SM	A-4	0	0-10	60-85	55-80	45-70	35-55	20-30	5-10
	19-27	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	27-34	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
Preacher--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-12	Medial loam	MH, SM, OH	A-5	0	0-5	80-90	75-85	60-80	45-65	50-60	NP-5
	12-18	Loam	CL-ML, CL	A-4	0	0-5	85-95	80-90	65-80	50-65	20-30	5-10
	18-29	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	29-44	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	44-53	Sandy loam, loam, clay loam	SC, SC-SM, CL	A-4, A-6	0	0-5	85-95	80-90	55-85	35-65	15-40	5-20
	53-63	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
24:												
Bohannon--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-10	Gravelly medial loam	GM	A-5	0	0-15	55-80	50-75	45-65	35-50	50-60	NP-5
	10-19	Gravelly loam	GC, SC, SC-SM	A-4	0	0-10	60-85	55-80	45-70	35-55	20-30	5-10
	19-27	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	27-34	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
Preacher--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-12	Medial loam	MH, SM, OH	A-5	0	0-5	80-90	75-85	60-80	45-65	50-60	NP-5
	12-18	Loam	CL-ML, CL	A-4	0	0-5	85-95	80-90	65-80	50-65	20-30	5-10
	18-29	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	29-44	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	44-53	Sandy loam, loam, clay loam	SC, SC-SM, CL	A-4, A-6	0	0-5	85-95	80-90	55-85	35-65	15-40	5-20
	53-63	Weathered bedrock			---	---	---	---	---	---	---	---
25:												
Briedwell-------	0-7	Gravelly loam	GM, ML	A-4	0	0-5	65-80	60-75	50-65	35-55	25-35	NP-10
	7-17	Cobbly loam, gravelly silty clay loam, gravelly clay loam, clay loam	GC, CL, GM, ML	A-2, A-6, A-4	0	0-15	55-95	50-90	40-85	30-80	25-40	NP-15
	17-30	Extremely cobbly clay loam, extremely gravelly clay loam, very gravelly loam, very gravelly clay loam	GC, GM	A-2, A-4, A-6	0-5	10-50	15-55	10-50	10-45	5-40	30-40	5-15
	30-60	Extremely cobbly clay loam, extremely gravelly clay loam, very gravelly loam, very gravelly clay loam	GM, GC	A-2, A-4, A-6	0-5	10-50	15-55	10-50	10-45	5-40	30-40	5-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
26:												
Briedwell-------	0-7	Gravelly loam	GM, ML	A-4	0	0-5	65-80	60-75	50-65	35-55	25-35	NP-10
	7-17	Cobbly loam, gravelly silty clay loam, gravelly clay loam, clay loam	GC, CL, GM, ML	A-2, A-6, A-4	0	0-15	55-95	50-90	40-85	30-80	25-40	NP-15
	17-30	Extremely cobbly clay loam, extremely gravelly clay loam, very gravelly loam, very gravelly clay loam	GC, GM	A-2, A-4, A-6	0-5	10-50	15-55	10-50	10-45	5-40	30-40	5-15
	30-60	Extremely cobbly clay loam, extremely gravelly clay loam, very gravelly loam, very gravelly clay loam	GM, GC	A-2, A-4, A-6	0-5	10-50	15-55	10-50	10-45	5-40	30-40	5-15
27:												
Burntwoods------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-12	Extremely gravelly medial loam	GM, GP-GM	A-1	0-30	15-55	15-35	10-30	10-30	10-25	50-60	NP-5
	12-19	Extremely gravelly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0-30	15-50	20-40	15-35	10-30	10-25	50-60	NP-5
	19-27	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC	A-2	0-25	25-45	20-45	15-40	15-40	15-30	25-35	10-15
	27-41	Very gravelly loam, extremely gravelly loam, extremely gravelly clay loam	GC	A-2	0-20	20-35	25-50	20-45	20-40	15-30	25-35	10-15
	41-53	Very gravelly loam, extremely gravelly loam, extremely gravelly clay loam	GC	A-2, A-6	0-20	20-35	25-50	20-45	20-40	15-40	25-35	10-15
	53-67	Very gravelly loam, extremely gravelly loam, extremely gravelly clay loam	GC	A-2, A-6	0-20	20-30	25-55	20-50	20-50	15-40	25-35	10-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
27:												
Oldblue---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Gravelly medial loam	GM, SM	A-2, A-5	0	0-10	50-75	45-70	35-65	25-50	50-60	NP-5
	6-12	Very paragravelly medial loam, gravelly medial loam	SM, GM	A-2, A-5	0	0-10	50-80	45-75	40-65	30-50	50-60	NP-5
	12-21	Very paragravelly medial loam, paragravelly medial loam	SM, ML	A-5	0	0-10	80-95	75-90	60-85	40-70	40-50	NP-5
	21-38	Extremely paragravelly clay loam, very paragravelly loam, extremely paracobbly clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-80	25-35	10-15
	38-75	Extremely paracobbly clay loam, very paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-80	25-35	10-15
	75-85	Weathered bedrock			---	---	---	---	---	---	---	---
28:												
Camas-----------	0-2	Gravelly sandy loam	GM, SM	A-2, A-1	0	0-15	55-80	50-75	30-50	15-30	15-30	NP-5
	2-10	Gravelly sandy loam	GM, SM	A-2, A-1	0	0-15	55-80	50-75	30-50	15-30	15-30	NP-5
	10-13	Gravelly sandy loam, very gravelly loamy sand, gravelly sand, gravelly loamy sand	GM, SM, GP-GM, SP-SM	A-2, A-1	0	0-15	40-75	35-70	20-50	5-30	10-30	NP-5
	13-60	Stratified extremely gravelly coarse sand to very gravelly loamy sand	GP, GP-GM	A-1	0	5-30	15-55	10-50	5-35	0-10	0-15	NP-5
29:												
Camas, rarely flooded--------	0-7	Gravelly sandy loam	GM, SM	A-2, A-1	0	0-15	55-80	50-75	30-50	15-30	15-30	NP-5
	7-10	Gravelly sandy loam	GM, SM	A-2, A-1	0	0-15	55-80	50-75	30-50	15-30	15-30	NP-5
	10-60	Stratified extremely gravelly coarse sand to very gravelly loamy sand	GP, GP-GM	A-1	0	5-30	15-55	10-50	5-35	0-15	0-15	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
30:												
Caterl----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Gravelly medial loam	GM	A-5, A-1, A-2	0	0-25	30-70	25-65	20-50	15-40	50-60	NP-5
	9-18	Very gravelly medial loam, gravelly medial loam	GM	A-1, A-5	0	0-30	25-65	20-60	20-50	15-40	50-60	NP-5
	18-37	Very cobbly medial clay loam, very gravelly medial loam, very gravelly medial clay loam	GM	A-1, A-5	0	0-65	25-65	20-60	20-55	15-45	50-60	NP-5
	37-55	Extremely cobbly medial loam, extremely gravelly medial loam, extremely cobbly medial clay loam	GM, GP-GM	A-1	0-25	0-65	10-35	10-30	10-25	10-20	50-60	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---
Laderly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Very gravelly medial loam	GM	A-1, A-2	0	0-30	25-45	20-40	20-40	15-30	50-60	NP-5
	15-29	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-30	0-90	15-55	10-50	10-45	10-35	50-60	NP-5
	29-37	Very cobbly medial loam, very gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-25	0-85	15-55	10-50	10-45	10-35	50-60	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Romanose--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Very gravelly medial loam	GM, GP-GM	A-1	0	0-55	20-40	15-35	10-30	10-25	50-60	NP-5
	7-11	Extremely gravelly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0	30-50	20-30	15-30	15-30	10-25	50-60	NP-5
	11-16	Very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1	0	55-85	20-60	15-55	15-45	10-35	50-60	NP-5
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
31:												
Caterl----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Gravelly medial loam	GM	A-5, A-1, A-2	0	0-25	30-70	25-65	20-50	15-40	50-60	NP-5
	9-18	Very gravelly medial loam, gravelly medial loam	GM	A-1, A-5	0	0-30	25-65	20-60	20-50	15-40	50-60	NP-5
	18-37	Very cobbly medial clay loam, very gravelly medial loam, very gravelly medial clay loam	GM	A-1, A-5	0	0-65	25-65	20-60	20-55	15-45	50-60	NP-5
	37-55	Extremely cobbly medial loam, extremely gravelly medial loam, extremely cobbly medial clay loam	GP-GM, GM	A-1	0-25	0-65	10-35	10-30	10-25	10-20	50-60	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---
Laderly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Very gravelly medial loam	GM	A-1, A-2	0	0-30	25-45	20-40	20-40	15-30	50-60	NP-5
	15-29	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-30	0-90	15-55	10-50	10-45	10-35	50-60	NP-5
	29-37	Very cobbly medial loam, very gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-25	0-85	15-55	10-50	10-45	10-35	50-60	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Romanose--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Very gravelly medial loam	GM, GP-GM	A-1	0	0-55	20-40	15-35	10-30	10-25	50-60	NP-5
	7-11	Extremely gravelly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0	30-50	20-30	15-30	15-30	10-25	50-60	NP-5
	11-16	Very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1	0	55-85	20-60	15-55	15-45	10-35	50-60	NP-5
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
32:												
Caterl----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Gravelly medial loam	GM	A-5, A-1, A-2	0	0-25	30-70	25-65	20-50	15-40	50-60	NP-5
	9-18	Very gravelly medial loam, gravelly medial loam	GM	A-1, A-5	0	0-30	25-65	20-60	20-50	15-40	50-60	NP-5
	18-37	Very cobbly medial clay loam, very gravelly medial loam, very gravelly medial clay loam	GM	A-1, A-5	0	0-65	25-65	20-60	20-55	15-45	50-60	NP-5
	37-55	Extremely cobbly medial loam, extremely gravelly medial loam, extremely cobbly medial clay loam	GM, GP-GM	A-1	0-25	0-65	10-35	10-30	10-25	10-20	50-60	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---
Murtip----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-19	Medial loam	MH, SM	A-5	0	0	70-100	65-100	55-95	40-75	50-60	NP-5
	19-31	Medial loam, gravelly medial clay loam, gravelly medial loam	GM, MH, SM	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	31-45	Gravelly medial loam, gravelly medial clay loam, medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	45-56	Gravelly medial clay loam, gravelly medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-75	40-70	40-70	30-55	50-60	NP-5
	56-66	Weathered bedrock			---	---	---	---	---	---	---	---
Giveout---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-16	Gravelly medial loam	GM, SM	A-5, A-2	0	0-10	50-70	45-65	40-55	30-45	50-60	NP-5
	16-28	Gravelly medial loam, medial clay loam, paracobbly medial loam	GM, MH, SM	A-5, A-2	0	0-10	55-90	50-85	40-85	30-65	50-60	NP-5
	28-36	Paracobbly medial loam, gravelly medial loam, medial clay loam	MH, GM, SM	A-5, A-2	0	0-10	55-90	50-85	40-85	30-65	50-60	NP-5
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
33:												
Caterl----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Gravelly medial loam	GM	A-5, A-1, A-2	0	0-25	30-70	25-65	20-50	15-40	50-60	NP-5
	9-18	Very gravelly medial loam, gravelly medial loam	GM	A-1, A-5	0	0-30	25-65	20-60	20-50	15-40	50-60	NP-5
	18-37	Very cobbly medial clay loam, very gravelly medial loam, very gravelly medial clay loam	GM	A-1, A-5	0	0-65	25-65	20-60	20-55	15-45	50-60	NP-5
	37-55	Extremely cobbly medial loam, extremely gravelly medial loam, extremely cobbly medial clay loam	GP-GM, GM	A-1	0-25	0-65	10-35	10-30	10-25	10-20	50-60	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---
Murtip----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-19	Medial loam	MH, SM	A-5	0	0	70-100	65-100	55-95	40-75	50-60	NP-5
	19-31	Medial loam, gravelly medial clay loam, gravelly medial loam	GM, MH, SM	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	31-45	Gravelly medial loam, gravelly medial clay loam, medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	45-56	Gravelly medial clay loam, gravelly medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-75	40-70	40-70	30-55	50-60	NP-5
	56-66	Weathered bedrock			---	---	---	---	---	---	---	---
Laderly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Very gravelly medial loam	GM	A-1, A-2	0	0-30	25-45	20-40	20-40	15-30	50-60	NP-5
	15-29	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-30	0-90	15-55	10-50	10-45	10-35	50-60	NP-5
	29-37	Very cobbly medial loam, very gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-25	0-85	15-55	10-50	10-45	10-35	50-60	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
34:												
Chapman---------	0-8	Loam	ML	A-4	0	0	95-100	95-100	80-95	60-75	30-40	5-10
	8-14	Clay loam, loam	ML	A-6, A-5, A-4, A-7	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	14-23	Clay loam, loam	ML	A-7, A-6, A-5, A-4	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	23-33	Clay loam, loam	ML	A-4, A-7, A-6, A-5	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	33-42	Loam, clay loam	ML	A-4, A-6, A-7, A-5	0	0	90-100	85-100	70-95	50-80	30-45	5-15
	42-50	Gravelly sandy loam, gravelly loam	GM, SM	A-1, A-2, A-4	0	0	60-85	50-75	30-70	15-50	15-30	NP-10
	50-60	Very gravelly sandy loam	GM	A-1	0	0	40-60	35-50	20-35	10-20	15-25	NP-10
35:												
Chapman, high precipitation--	0-8	Loam	ML	A-4	0	0	95-100	95-100	80-95	60-75	30-40	5-10
	8-14	Clay loam, loam	ML	A-6, A-5, A-4, A-7	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	14-23	Clay loam, loam	ML	A-7, A-6, A-5, A-4	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	23-33	Loam, clay loam	ML	A-4, A-7, A-6, A-5	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	33-42	Loam, clay loam	ML	A-4, A-6, A-7, A-5	0	0	90-100	85-100	75-95	55-80	30-45	5-15
	42-50	Gravelly sandy loam, gravelly loam	GM, SM	A-1, A-2, A-4	0	0	60-85	50-75	30-70	15-50	15-30	NP-10
	50-60	Very gravelly sandy loam	GM	A-1	0	0	40-60	35-50	20-35	10-20	15-25	NP-10
36:												
Chehalem--------	0-7	Silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-45	10-20
	7-11	Silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-45	10-20
	11-23	Silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-45	10-20
	23-36	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-55	15-30
	36-49	Clay, silty clay	CH, CL	A-7	0	0	95-100	90-100	85-100	80-95	40-55	15-30
	49-60	Paragravelly clay loam, silty clay, clay, silty clay loam	CH, CL	A-6, A-7	0	0	95-100	90-100	80-100	65-95	35-55	15-30

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
37:												
Chehalem--------	0-7	Silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-45	10-20
	7-11	Silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-45	10-20
	11-23	Silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-45	10-20
	23-36	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	95-100	90-100	85-100	80-95	35-55	15-30
	36-49	Clay, silty clay	CH, CL	A-7	0	0	95-100	90-100	85-100	80-95	40-55	15-30
	49-60	Paragravelly clay loam, silty clay, clay, silty clay loam	CH, CL	A-6, A-7	0	0	95-100	90-100	80-100	65-95	35-55	15-30
38:												
Chehalis--------	0-7	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-95	30-40	5-10
	7-24	Silty clay loam, silt loam	CL, ML	A-6, A-7	0	0	95-100	95-100	90-100	85-95	30-50	10-20
	24-44	Silt loam, silty clay loam	CL, ML	A-7, A-6	0	0	95-100	95-100	85-100	80-95	30-50	10-20
	44-60	Stratified fine sandy loam to silty clay loam	ML, SM	A-4, A-6, A-7	0	0	80-100	75-100	55-100	40-90	25-50	5-20
39:												
Chehalis, high precipitation--	0-7	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-95	30-40	5-10
	7-24	Silty clay loam, silt loam	ML	A-4, A-6, A-7	0	0	95-100	95-100	90-100	85-95	30-45	10-20
	24-44	Silt loam, silty clay loam	ML	A-7, A-6, A-4	0	0	95-100	95-100	85-100	80-95	30-45	10-20
	44-60	Stratified fine sandy loam to silty clay loam	ML, SM	A-4, A-6, A-7	0	0	80-100	75-100	55-100	40-90	25-50	5-20
40:												
Chehalis--------	0-8	Silty clay loam	ML	A-6, A-7	0	0	95-100	95-100	90-100	85-95	35-45	10-15
	8-16	Silty clay loam	CL, ML	A-7, A-6	0	0	95-100	95-100	90-100	85-95	35-50	10-20
	16-38	Silt loam, silty clay loam	CL, ML	A-7, A-6	0	0	95-100	95-100	85-100	80-95	30-50	10-20
	38-45	Silt loam, silty clay loam	CL, ML	A-7, A-6	0	0	95-100	95-100	85-100	80-95	30-50	10-20
	45-60	Stratified fine sandy loam to silty clay loam	ML, SM	A-4, A-6, A-7	0	0	80-100	75-100	55-100	40-90	25-50	5-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
41:												
Chintimini------	0-4	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	4-9	Very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	25-40	20-35	15-35	10-25	50-60	NP-5
	9-20	Extremely gravelly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	20-35	15-30	15-30	10-25	50-60	NP-5
	20-38	Very cobbly clay loam, extremely cobbly loam, extremely gravelly loam	GC, GP-GC, GC-GM	A-1, A-2	0-10	35-55	20-50	15-45	15-35	10-35	20-35	5-15
	38-47	Very paragravelly loam, extremely paragravelly clay loam, very paragravelly clay loam	CL-ML, CL	A-6, A-4	0	0-10	85-100	80-100	65-85	50-60	20-35	5-15
	47-51	Weathered bedrock			---	---	---	---	---	---	---	---
	51-55	Unweathered bedrock			---	---	---	---	---	---	---	---
Blodgett--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Very gravelly medial loam	GM	A-2, A-1	0-25	15-25	25-40	20-35	20-35	15-30	50-60	NP-5
	6-11	Extremely gravelly loam, extremely cobbly loam, very gravelly loam	GC-GM, GP-GC, GC	A-1, A-4, A-2	0-20	20-60	25-60	20-55	15-50	10-40	20-30	5-10
	11-16	Extremely gravelly loam, very gravelly loam, extremely cobbly loam	GP-GC, GC, GC-GM	A-1, A-2, A-4	0-20	20-55	25-65	20-60	15-50	10-40	20-30	5-10
	16-19	Weathered bedrock			---	---	---	---	---	---	---	---
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
42:												
Chintimini------	0-4	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	4-9	Very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	25-40	20-35	15-35	10-25	50-60	NP-5
	9-20	Extremely gravelly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	20-35	15-30	15-30	10-25	50-60	NP-5
	20-38	Very cobbly clay loam, extremely cobbly loam, extremely gravelly loam	GC, GP-GC, GC-GM	A-1, A-2	0-10	35-55	20-50	15-45	15-35	10-35	20-35	5-15
	38-47	Very paragravelly loam, extremely paragravelly clay loam, very paragravelly clay loam	CL, CL-ML	A-6, A-4	0	0-10	85-100	80-100	65-85	50-60	20-35	5-15
	47-51	Weathered bedrock			---	---	---	---	---	---	---	---
	51-55	Unweathered bedrock			---	---	---	---	---	---	---	---
Blodgett--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Very gravelly medial loam	GM	A-2, A-1	0-25	15-25	25-40	20-35	20-35	15-30	50-60	NP-5
	6-11	Extremely gravelly loam, extremely cobbly loam, very gravelly loam	GC-GM, GC, GP-GC	A-1, A-4, A-2	0-20	20-60	25-60	20-55	15-50	10-40	20-30	5-10
	11-16	Extremely gravelly loam, very gravelly loam, extremely cobbly loam	GC-GM, GC, GP-GC	A-1, A-2, A-4	0-20	20-55	25-65	20-60	15-50	10-40	20-30	5-10
	16-19	Weathered bedrock			---	---	---	---	---	---	---	---
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
42:												
Fiverivers------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very gravelly medial loam	GM	A-1	0-10	0-15	30-45	25-40	15-35	10-25	50-60	NP-5
	4-9	Gravelly medial loam, very gravelly medial loam	GM	A-1, A-2	0-10	0-15	35-60	30-55	30-50	20-35	50-60	NP-5
	9-15	Paragravelly clay loam, paragravelly loam, gravelly loam	GC, SC	A-4, A-6	0-5	0-10	60-80	55-70	55-65	40-50	25-35	10-15
	15-25	Very paragravelly loam, very paragravelly clay loam, extremely paragravelly clay loam	CL	A-4, A-6	0-5	0-10	85-95	80-90	65-85	55-75	25-35	10-15
	25-36	Very paragravelly clay loam, very paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0-5	0-10	85-95	80-90	65-85	55-75	25-35	10-15
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
43:												
Chintimini------	0-4	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	4-9	Very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	25-40	20-35	15-35	10-25	50-60	NP-5
	9-20	Extremely gravelly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	20-35	15-30	15-30	10-25	50-60	NP-5
	20-38	Very cobbly clay loam, extremely cobbly loam, extremely gravelly loam	GP-GC, GC, GC-GM	A-1, A-2	0-10	35-55	20-50	15-45	15-35	10-35	20-35	5-15
	38-47	Very paragravelly loam, extremely paragravelly clay loam, very paragravelly clay loam	CL, CL-ML	A-6, A-4	0	0-10	85-100	80-100	65-85	50-60	20-35	5-15
	47-51	Weathered bedrock			---	---	---	---	---	---	---	---
	51-55	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
43:												
Grassmountain---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly medial loam	GM	A-2, A-5	0	0-15	60-70	55-65	50-65	35-50	50-60	NP-5
	7-15	Gravelly medial loam, paragravelly medial loam	GM, MH	A-5	0	0-10	60-80	55-75	50-75	40-60	50-60	NP-5
	15-29	Very paracobbly silty clay loam, very paragravelly clay loam, paragravelly loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	29-44	Very paracobbly silty clay loam, paragravelly loam, very paragravelly clay loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	44-69	Very paracobbly silty clay loam, extremely paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	69-79	Weathered bedrock			---	---	---	---	---	---	---	---
44:												
Chismore--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	9-17	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	17-22	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
	22-30	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
	30-43	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
	43-66	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
Pyburn----------	0-13	Silty clay	CL	A-7	0	0	100	100	95-100	85-95	45-50	20-25
	13-20	Silty clay, silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	40-45	15-20
	20-36	Clay, silty clay, silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	75-95	40-45	15-20
	36-48	Clay, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-65	25-35
	48-66	Clay, silty clay, clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	40-50	15-25

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
45:												
Chismore--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	9-17	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	17-22	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
	22-30	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
	30-43	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
	43-66	Silty clay loam, silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-95	40-45	15-20
Pyburn----------	0-13	Silty clay	CL	A-7	0	0	100	100	95-100	85-95	45-50	20-25
	13-20	Silty clay, silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	40-45	15-20
	20-36	Clay, silty clay, silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	75-95	40-45	15-20
	36-48	Clay, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-65	25-35
	48-66	Clay, silty clay, clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	40-50	15-25
46:												
Cloquato--------	0-7	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	20-30	NP-5
	7-12	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	20-30	NP-5
	12-40	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	20-30	NP-5
	40-52	Stratified sandy loam to silt loam	ML, SM	A-4	0	0	90-100	85-100	70-100	40-80	15-20	NP-5
	52-72	Stratified sand to fine sandy loam	SM, SP-SM	A-4, A-2, A-3, A-1	0	0	90-100	85-100	40-80	5-50	0-15	NP
47:												
Cloquato, high precipitation--	0-7	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	20-30	NP-5
	7-12	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	20-30	NP-5
	12-40	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	20-30	NP-5
	40-52	Stratified sandy loam to silt loam	ML, SM	A-4	0	0	90-100	85-100	70-100	40-80	15-20	NP-5
	52-72	Stratified sand to fine sandy loam	SP-SM, SM	A-4, A-2, A-3, A-1	0	0	90-100	85-100	40-80	5-50	0-15	NP

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
48:												
Coburg, occasionally flooded--------	0-10	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	10-18	Silty clay loam	ML	A-6, A-7	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	18-28	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	28-43	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	43-60	Silty clay loam, silty clay	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
Coburg, rarely flooded--------	0-9	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-99	75-94	35-45	10-15
	9-15	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-99	75-94	35-45	10-15
	15-24	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-99	75-94	40-50	15-20
	24-33	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-99	75-94	40-50	15-20
	33-41	Silty clay loam, silty clay	CL, ML	A-7	0	0	95-100	90-100	85-99	75-94	40-50	15-20
	41-60	Silty clay loam, silty clay	CL, ML	A-7	0	0	90-100	90-100	85-99	75-94	40-50	15-20
49:												
Coburg----------	0-7	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	7-18	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	18-28	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	28-41	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	41-53	Silty clay loam, silty clay	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	53-65	Sandy clay loam, fine sandy loam, loam, clay loam	ML, SM	A-4, A-6, A-2	0	0	90-100	85-100	60-100	30-70	25-40	NP-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
50:												
Coburg, rarely flooded--------	0-9	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	9-15	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	15-24	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	24-33	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	33-41	Silty clay loam, silty clay	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	41-60	Silty clay loam, silty clay	CL, ML	A-7	0	0	90-100	90-100	85-100	75-95	40-50	15-20
51:												
Concord---------	0-6	Silt loam	CL-ML, ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	6-9	Silty clay loam, silt loam	CL, ML	A-6, A-4	0	0	100	95-100	95-100	85-100	30-40	5-15
	9-15	Silty clay loam, silt loam	CL, ML	A-6, A-4	0	0	100	95-100	95-100	85-100	30-40	5-15
	15-19	Silty clay, silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	40-50	15-25
	19-24	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	24-29	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	29-60	Silt loam, silty clay loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	80-100	25-40	5-15
52:												
Conser----------	0-9	Silty clay loam	ML	A-7, A-6	0	0	90-100	85-100	80-100	75-95	35-50	10-20
	9-14	Clay, silty clay, silty clay loam	MH, ML, CL	A-7	0	0	90-100	85-100	80-100	75-95	40-55	15-25
	14-27	Clay, silty clay, silty clay loam	MH, ML, CL	A-7	0	0	90-100	85-100	80-100	75-95	40-60	15-25
	27-41	Clay, silty clay, silty clay loam	CL, MH, ML	A-7	0	0	90-100	85-100	80-100	75-95	40-60	15-25
	41-49	Stratified sandy loam to silty clay loam	ML, SM	A-2, A-6, A-4	0	0	90-100	85-100	55-90	30-80	25-40	NP-15
	49-60	Stratified sandy loam to silty clay loam	ML, SM	A-4, A-2, A-6	0	0	90-100	85-100	55-90	30-80	25-40	NP-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
53:												
Dayton----------	0-9	Silt loam	CL-ML, ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-14
	9-12	Silt loam, silty clay loam	CL, ML	A-4, A-6	0	0	100	95-100	95-100	85-100	30-40	5-15
	12-15	Silt loam, silty clay loam	CL, ML	A-4, A-6	0	0	100	95-100	95-100	85-100	30-40	5-15
	15-22	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	22-29	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	29-40	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	40-53	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	53-64	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	80-100	25-40	5-15
	64-76	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	80-100	25-40	5-15
54:												
Dayton, clay substratum-----	0-7	Silt loam	ML	A-6, A-4	0	0	95-100	95-100	90-100	90-100	25-40	5-15
	7-12	Silty clay loam, silt loam	ML, CL	A-4, A-6	0	0	95-100	95-100	90-100	90-100	25-40	5-15
	12-16	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	95-100	95-100	90-100	90-100	25-40	5-15
	16-30	Clay, silty clay	CH	A-7	0	0	100	100	95-100	95-100	55-70	35-45
	30-45	Silty clay, clay	CH	A-7	0	0	100	100	95-100	95-100	55-70	35-45
	45-60	Silty clay, clay	CH	A-7	0	0	80-100	75-100	70-100	70-100	55-70	35-45
55:												
Digger----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very gravelly loam	GC, GC-GM	A-2, A-1	0	0-25	30-50	25-45	20-40	15-30	20-30	5-10
	4-16	Very cobbly loam, very gravelly loam, extremely gravelly loam	GC, GC-GM	A-2, A-4, A-1	0	0-60	30-60	25-55	20-50	15-40	20-30	5-10
	16-30	Very gravelly loam, extremely gravelly loam, extremely cobbly loam	GC, GC-GM	A-4, A-2, A-1	0	25-55	25-60	20-55	20-50	15-40	20-30	5-10
	30-38	Extremely cobbly loam, extremely gravelly loam, very gravelly loam	GC-GM, GC	A-4, A-2, A-1	0	25-55	25-60	20-55	20-50	15-40	20-30	5-10
	38-48	Weathered bedrock			---	---	---	---	---	---	---	---
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
55:												
Bohannon--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-10	Gravelly medial loam	GM	A-5	0	0-15	55-80	50-75	45-65	35-50	50-60	NP-5
	10-19	Gravelly loam	GC, SC, SC-SM	A-4	0	0-10	60-85	55-80	45-70	35-55	20-30	5-10
	19-27	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	27-34	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
56:												
Digger----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very gravelly loam	GC, GC-GM	A-2, A-1	0	0-25	30-50	25-45	20-40	15-30	20-30	5-10
	4-16	Very cobbly loam, very gravelly loam, extremely gravelly loam	GC-GM, GC	A-2, A-4, A-1	0	0-60	30-60	25-55	20-50	15-40	20-30	5-10
	16-30	Very gravelly loam, extremely gravelly loam, extremely cobbly loam	GC-GM, GC	A-4, A-2, A-1	0	25-55	25-60	20-55	20-50	15-40	20-30	5-10
	30-38	Extremely cobbly loam, extremely gravelly loam, very gravelly loam	GC-GM, GC	A-4, A-2, A-1	0	25-55	25-60	20-55	20-50	15-40	20-30	5-10
	38-48	Weathered bedrock			---	---	---	---	---	---	---	---
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
56:												
Remote----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Very gravelly loam	GC, GC-GM	A-2, A-1	0	0-10	30-45	25-40	20-40	15-30	20-30	5-10
	5-17	Extremely gravelly clay loam, very gravelly loam, extremely gravelly loam	GC-GM, GC, GP-GC	A-2, A-1, A-4	0	10-30	15-50	10-45	10-45	10-40	20-35	5-15
	17-33	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC-GM, GC, GP-GC	A-2, A-4, A-1	0	10-25	20-55	15-50	10-50	10-40	20-35	5-15
	33-42	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC-GM, GC, GP-GC	A-2, A-4, A-1	0	10-25	20-55	15-50	10-50	10-40	20-35	5-15
	42-72	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC, GC-GM, GP-GC	A-2, A-4, A-1	0	10-25	20-60	15-55	15-50	10-40	20-35	5-15
Umpcoos---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Very gravelly loam	GC, GC-GM	A-1	0	0-10	30-45	25-40	20-40	15-30	20-25	5-10
	5-12	Extremely cobbly loam, very gravelly loam, very cobbly loam	GC-GM, GC	A-4, A-1, A-2	0	45-65	30-75	25-70	20-60	15-45	20-30	5-10
	12-16	Very gravelly loam, extremely cobbly loam, very cobbly loam	GC-GM, GC	A-4, A-1, A-2	0	40-60	25-80	20-75	20-60	15-45	20-30	5-10
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
57:												
Digger----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very gravelly loam	GC-GM, GC	A-2, A-1	0	0-25	30-50	25-45	20-40	15-30	20-30	5-10
	4-16	Very cobbly loam, very gravelly loam, extremely gravelly loam	GC-GM, GC	A-2, A-4, A-1	0	0-60	30-60	25-55	20-50	15-40	20-30	5-10
	16-30	Very gravelly loam, extremely gravelly loam, extremely cobbly loam	GC-GM, GC	A-4, A-2, A-1	0	25-55	25-60	20-55	20-50	15-40	20-30	5-10
	30-38	Extremely cobbly loam, extremely gravelly loam, very gravelly loam	GC-GM, GC	A-4, A-2, A-1	0	25-55	25-60	20-55	20-50	15-40	20-30	5-10
	38-48	Weathered bedrock			---	---	---	---	---	---	---	---
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Umpcoos---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Very gravelly loam	GC, GC-GM	A-1	0	0-10	30-45	25-40	20-40	15-30	20-25	5-10
	5-12	Extremely cobbly loam, very gravelly loam, very cobbly loam	GC-GM, GC	A-4, A-1, A-2	0	45-65	30-75	25-70	20-60	15-45	20-30	5-10
	12-16	Very gravelly loam, extremely cobbly loam, very cobbly loam	GC-GM, GC	A-4, A-1, A-2	0	40-60	25-80	20-75	20-60	15-45	20-30	5-10
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
57:												
Remote----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Very gravelly loam	GC, GC-GM	A-2, A-1	0	0-10	30-45	25-40	20-40	15-30	20-30	5-10
	5-17	Extremely gravelly clay loam, very gravelly loam, extremely gravelly loam	GC-GM, GC, GP-GC	A-2, A-1, A-4	0	10-30	15-50	10-45	10-45	10-40	20-35	5-15
	17-33	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC-GM, GC, GP-GC	A-2, A-4, A-1	0	10-25	20-55	15-50	10-50	10-40	20-35	5-15
	33-42	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC-GM, GC, GP-GC	A-2, A-4, A-1	0	10-25	20-55	15-50	10-50	10-40	20-35	5-15
	42-72	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC, GC-GM, GP-GC	A-2, A-4, A-1	0	10-25	20-60	15-55	15-50	10-40	20-35	5-15
58:												
Dixonville------	0-4	Silty clay loam	CL, MH	A-7, A-6	0	0-15	85-100	80-100	75-100	70-95	35-55	15-25
	4-12	Silty clay loam, silty clay	MH, CH, CL	A-7, A-6	0	0-25	85-100	80-100	75-100	70-95	40-70	20-35
	12-21	Cobbly clay, gravelly silty clay, clay, silty clay	MH, CH	A-7	0	0-30	75-100	70-100	65-100	50-95	50-75	25-40
	21-34	Silty clay, clay, cobbly silty clay, cobbly clay	MH, CH	A-7	0	0-30	75-100	70-100	65-100	50-95	50-75	25-40
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
Gellatly--------	0-8	Silty clay loam	CL, MH, ML	A-7, A-6	0	0-15	95-100	90-100	85-100	75-95	35-55	15-25
	8-14	Cobbly silty clay, cobbly silty clay loam, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0-30	95-100	90-100	80-100	75-95	40-70	20-35
	14-29	Silty clay, clay	MH, CH	A-7	0	0-10	95-100	90-100	80-100	70-95	40-70	20-35
	29-45	Clay, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0	100	100	90-100	80-95	40-70	20-35
	45-61	Paragravelly clay, clay, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0	100	100	90-100	80-95	35-70	20-30
	61-71	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
59:												
Dixonville------	0-4	Silty clay loam	CL, MH, ML	A-7, A-6	0	0-15	85-100	80-100	75-100	70-95	35-55	15-25
	4-12	Silty clay loam, silty clay	MH, CH, CL	A-7, A-6	0	0-25	85-100	80-100	75-100	70-95	40-70	20-35
	12-21	Cobbly clay, gravelly silty clay, clay, silty clay	MH, CH	A-7	0	0-30	75-100	70-100	65-100	50-95	50-75	25-40
	21-34	Silty clay, clay, cobbly silty clay, cobbly clay	MH, CH	A-7	0	0-30	75-100	70-100	65-100	50-95	50-75	25-40
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
Gellatly--------	0-8	Silty clay loam	CL, MH, ML	A-7, A-6	0	0-15	95-100	90-100	85-100	75-95	35-55	15-25
	8-14	Cobbly silty clay, cobbly silty clay loam, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0-30	95-100	90-100	80-100	75-95	40-70	20-35
	14-29	Silty clay, clay	MH, CH	A-7	0	0-10	95-100	90-100	80-100	70-95	40-70	20-35
	29-45	Clay, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0	100	100	90-100	80-95	40-70	20-35
	45-61	Paragravelly clay, clay, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0	100	100	90-100	80-95	35-70	20-30
	61-71	Weathered bedrock			---	---	---	---	---	---	---	---
60:												
Dixonville------	0-4	Silty clay loam	ML, CL, MH	A-7, A-6	0	0-15	85-100	80-100	75-100	70-95	35-55	15-25
	4-12	Silty clay loam, silty clay	MH, CH, CL	A-7, A-6	0	0-25	85-100	80-100	75-100	70-95	40-70	20-35
	12-21	Gravelly silty clay, clay, silty clay, cobbly clay	MH, CH	A-7	0	0-30	75-100	70-100	65-100	50-95	50-75	25-40
	21-34	Silty clay, clay, cobbly silty clay, cobbly clay	MH, CH	A-7	0	0-30	75-100	70-100	65-100	50-95	50-75	25-40
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
60:												
Gellatly--------	0-8	Silty clay loam	CL, MH	A-7, A-6	0	0-15	95-100	90-100	85-100	75-95	35-55	15-25
	8-14	Cobbly silty clay, cobbly silty clay loam, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0-30	95-100	90-100	80-100	75-95	35-70	20-30
	14-29	Silty clay, clay	MH, CH	A-7	0	0-10	95-100	90-100	80-100	70-95	50-80	25-35
	29-45	Clay, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0	100	100	90-100	80-95	35-70	20-35
	45-61	Paragravelly clay, clay, silty clay, silty clay loam	MH, CH, CL	A-7, A-6	0	0	100	100	90-100	80-95	35-70	20-30
	61-71	Weathered bedrock			---	---	---	---	---	---	---	---
Witham----------	0-4	Silty clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-100	45-55	25-35
	4-12	Silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	12-21	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	21-29	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	29-60	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	60-80	40-60
61:												
Dupee-----------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
62:												
Dupee-----------	0-4	Silt loam	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
63:												
Elsie-----------	0-8	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	8-15	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	15-22	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	22-35	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-100	25-35	10-15
	35-53	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	70-100	25-35	10-15
	53-67	Loam, silt loam	CL-ML, CL	A-4	0	0	100	100	85-100	60-90	25-30	5-10
64:												
Elsie-----------	0-8	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	8-15	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	15-22	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	22-35	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-100	25-35	10-15
	35-53	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	70-100	25-35	10-15
	53-67	Loam, silt loam	CL-ML, CL	A-4	0	0	100	100	85-100	60-90	25-30	5-10

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
65:												
Fiverivers------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very gravelly medial loam	GM	A-1	0-10	0-15	30-45	25-40	15-35	10-25	50-60	NP-5
	4-9	Gravelly medial loam, very gravelly medial loam	GM	A-1, A-2	0-10	0-15	35-60	30-55	30-50	20-35	50-60	NP-5
	9-15	Paragravelly clay loam, paragravelly loam, gravelly loam	GC, SC	A-4, A-6	0-5	0-10	60-80	55-70	55-65	40-50	25-35	10-15
	15-25	Very paragravelly loam, very paragravelly clay loam, extremely paragravelly clay loam	CL	A-4, A-6	0-5	0-10	85-95	80-90	65-85	55-75	25-35	10-15
	25-36	Very paragravelly clay loam, very paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0-5	0-10	85-95	80-90	65-85	55-75	25-35	10-15
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
Grassmountain---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly medial loam	GM	A-2, A-5	0	0-15	60-70	55-65	50-65	35-50	50-60	NP-5
	7-15	Gravelly medial loam, paragravelly medial loam	GM, MH	A-5	0	0-10	60-80	55-75	50-75	40-60	50-60	NP-5
	15-29	Very paracobbly silty clay loam, very paragravelly clay loam, paragravelly loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	29-44	Very paracobbly silty clay loam, paragravelly loam, very paragravelly clay loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	44-69	Very paracobbly silty clay loam, extremely paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	69-79	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
65:												
Chintimini------	0-4	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	4-9	Very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	25-40	20-35	15-35	10-25	50-60	NP-5
	9-20	Extremely gravelly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	20-35	15-30	15-30	10-25	50-60	NP-5
	20-38	Very cobbly clay loam, extremely cobbly loam, extremely gravelly loam	GC, GP-GC, GC-GM	A-1, A-2	0-10	35-55	20-50	15-45	15-35	10-35	20-35	5-15
	38-47	Very paragravelly loam, extremely paragravelly clay loam, very paragravelly clay loam	CL, CL-ML	A-6, A-4	0	0-10	85-100	80-100	65-85	50-60	20-35	5-15
	47-51	Weathered bedrock			---	---	---	---	---	---	---	---
	51-55	Unweathered bedrock			---	---	---	---	---	---	---	---
66:												
Fluvents--------	0-9	Gravelly sandy loam, sandy loam, loam, silt loam	GM, SM, ML	A-1, A-2, A-4	0	0	60-100	55-100	35-100	15-85	15-35	NP-10
	9-27	Gravelly sandy loam, gravelly loam, sandy loam, loam	ML, SM, GM	A-4, A-2, A-1	0	0	60-100	55-100	35-100	15-85	15-35	NP-10
	27-35	Gravelly sandy loam, gravelly loam, sandy loam, loam	ML, SM, GM	A-4, A-2, A-1	0	0	60-100	55-100	35-95	15-75	15-35	NP-10
	35-60	Stratified extremely gravelly sand to very gravelly loamy sand	GP-GM, GM, GP	A-1	0	15-40	15-55	10-50	5-40	0-15	0-15	NP
Fluvaquents-----	0-8	Gravelly silt loam, silt loam, loam, silty clay loam	GM, ML, GC, CL, CL-ML	A-6, A-4	0	0	60-100	55-100	50-100	35-95	15-40	NP-15
	8-24	Gravelly clay loam, gravelly loam, silt loam, silty clay loam	GM, ML, GC, CL, CL-ML	A-6, A-4	0	0	60-100	55-100	50-100	35-95	15-40	NP-15
	24-60	Stratified very gravelly sandy loam to silt loam	GM, ML, SM, GP-GM	A-1, A-2, A-4	0	0-30	35-100	30-100	20-100	10-90	15-35	NP-10

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
67:												
Fluvents, high precipitation--	0-9	Gravelly sandy loam, sandy loam, loam, silt loam	GM, SM, ML	A-1, A-2, A-4	0	0	60-100	55-100	35-100	15-85	15-35	NP-10
	9-27	Gravelly sandy loam, gravelly loam, sandy loam, loam	ML, SM, GM	A-4, A-2, A-1	0	0	60-100	55-100	35-100	15-85	15-35	NP-10
	27-35	Gravelly sandy loam, gravelly loam, sandy loam, loam	ML, SM, GM	A-4, A-2, A-1	0	0	60-100	55-100	35-95	15-75	15-35	NP-10
	35-60	Stratified extremely gravelly sand to very gravelly loamy sand	GP-GM, GM, GP	A-1	0	15-40	15-55	10-50	5-40	0-15	0-15	NP
Fluvaquents, high precipitation--	0-8	Gravelly silt loam, silt loam, loam, silty clay loam	GM, ML, GC, CL, CL-ML	A-6, A-4	0	0	60-100	55-100	50-100	35-95	15-40	NP-15
	8-24	Gravelly clay loam, gravelly loam, silt loam, silty clay loam	GM, ML, GC, CL, CL-ML	A-6, A-4	0	0	60-100	55-100	50-100	35-95	15-40	NP-15
	24-60	Stratified very gravelly sandy loam to silt loam	GM, ML, SM, GP-GM	A-1, A-2, A-4	0	0-30	35-100	30-100	20-100	10-90	15-35	NP-10
68:												
Formader--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Gravelly medial loam	GM	A-5	0	0	60-70	55-65	50-65	35-50	50-60	NP-5
	15-27	Gravelly loam, gravelly clay loam	GC-GM, CL, GC	A-4, A-2	0	0-10	55-75	50-70	40-70	30-55	20-35	5-15
	27-37	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
68:												
Hemcross--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	4-10	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	10-19	Medial loam	MH, SM	A-5	0	0	80-100	75-100	60-90	40-70	50-60	NP-5
	19-26	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	26-38	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	38-48	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	48-68	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
69:												
Formader--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Gravelly medial loam	GM	A-5	0	0	60-70	55-65	50-65	35-50	50-60	NP-5
	15-27	Gravelly loam, gravelly clay loam	GC-GM, CL, GC	A-4, A-2	0	0-10	55-75	50-70	40-70	30-55	20-35	5-15
	27-37	Weathered bedrock			---	---	---	---	---	---	---	---
Hemcross--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	4-10	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	10-19	Medial loam	MH, SM	A-5	0	0	80-100	75-100	60-90	40-70	50-60	NP-5
	19-26	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	26-38	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	38-48	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	48-68	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
70:												
Formader--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Gravelly medial loam	GM	A-5	0	0	60-70	55-65	50-65	35-50	50-60	NP-5
	15-27	Gravelly loam, gravelly clay loam	GC-GM, CL, GC	A-4, A-2	0	0-10	55-75	50-70	40-70	30-55	20-35	5-15
	27-37	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
70:												
Klistan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-17	Very gravelly medial loam	GM	A-2, A-1	0	0-15	35-50	30-45	25-45	20-35	50-60	NP-5
	17-25	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-2, A-1	0	30-65	25-50	20-45	20-40	15-30	50-60	NP-5
	25-43	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-1, A-2	0	25-65	25-50	20-45	20-45	15-35	50-60	NP-5
	43-56	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0	25-60	25-50	20-45	15-45	10-35	50-60	NP-5
	56-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Hemcross--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	4-10	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	10-19	Medial loam	MH, SM	A-5	0	0	80-100	75-100	60-90	40-70	50-60	NP-5
	19-26	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	26-38	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	38-48	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	48-68	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
71:												
Gelderman-------	0-5	Silty clay loam	ML	A-7, A-6, A-4	0	0-5	90-100	85-100	80-100	75-95	35-45	10-15
	5-10	Silty clay, clay, silty clay loam	ML	A-5, A-6, A-7	0	0-5	90-100	85-100	80-100	75-95	40-50	10-15
	10-24	Paragravelly clay, paragravelly silty clay, clay, silty clay	ML	A-7, A-5	0	0-10	90-95	85-90	80-90	75-85	40-50	10-20
	24-30	Silty clay, clay, paragravelly silty clay, paragravelly clay	ML	A-7, A-5	0	0-10	90-95	85-90	75-90	65-85	40-50	10-20
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
71:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CH, CL	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40
72:												
Goodin----------	0-3	Silty clay loam	CL	A-6, A-4	0	0	100	100	95-100	85-95	30-40	10-15
	3-9	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	85-95	30-45	10-20
	9-16	Clay, silty clay, silty clay loam	MH, CL	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	16-21	Silty clay loam, silty clay, clay	MH, CL	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	21-29	Very paragravelly clay, paragravelly clay, paragravelly silty clay, clay, silty clay loam	MH, CL	A-7, A-6	0	0	100	100	95-100	85-95	35-55	15-25
	29-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
72:												
Dupee-----------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
Chehulpum-------	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	70-90	25-35	NP-10
	4-12	Gravelly loam, silty clay loam, paragravelly silt loam, silt loam, clay loam	SM, ML	A-4, A-6	0	0-10	75-100	65-100	55-100	40-95	30-40	5-15
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---
73:												
Goodin----------	0-3	Silty clay loam	CL	A-6, A-4	0	0	100	100	95-100	85-95	30-40	10-15
	3-9	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	85-95	30-45	10-20
	9-16	Clay, silty clay, silty clay loam	MH, CL	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	16-21	Silty clay loam, silty clay, clay	MH, CL	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	21-29	Silty clay loam, very paragravelly clay, paragravelly clay, paragravelly silty clay, clay	MH, CL	A-7, A-6	0	0	100	100	95-100	85-95	35-55	15-25
	29-39	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
73:												
Chehulpum-------	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	70-90	25-35	NP-10
	4-12	Gravelly loam, silty clay loam, paragravelly silt loam, silt loam, clay loam	SM, ML	A-4, A-6	0	0-10	75-100	65-100	55-100	40-95	30-40	5-15
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---
Dupee-----------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
74:												
Grassmountain---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly medial loam	GM	A-2, A-5	0	0-15	60-70	55-65	50-65	35-50	50-60	NP-5
	7-15	Gravelly medial loam, paragravelly medial loam	GM, MH	A-5	0	0-10	60-80	55-75	50-75	40-60	50-60	NP-5
	15-29	Very paracobbly silty clay loam, very paragravelly clay loam, paragravelly loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	29-44	Very paracobbly silty clay loam, paragravelly loam, very paragravelly clay loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	44-69	Very paracobbly silty clay loam, extremely paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0	0-10	85-95	80-90	70-90	55-75	25-35	10-15
	69-79	Weathered bedrock			---	---	---	---	---	---	---	---
Fiverivers------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very gravelly medial loam	GM	A-1	0-10	0-15	30-45	25-40	15-35	10-25	50-60	NP-5
	4-9	Gravelly medial loam, very gravelly medial loam	GM	A-1, A-2	0-10	0-15	35-60	30-55	30-50	20-35	50-60	NP-5
	9-15	Paragravelly clay loam, paragravelly loam, gravelly loam	GC, SC	A-4, A-6	0-5	0-10	60-80	55-70	55-65	40-50	25-35	10-15
	15-25	Very paragravelly loam, very paragravelly clay loam, extremely paragravelly clay loam	CL	A-4, A-6	0-5	0-10	85-95	80-90	65-85	55-75	25-35	10-15
	25-36	Very paragravelly clay loam, very paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0-5	0-10	85-95	80-90	65-85	55-75	25-35	10-15
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
74:												
Chintimini------	0-4	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	4-9	Very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	25-40	20-35	15-35	10-25	50-60	NP-5
	9-20	Extremely gravelly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1	0-15	15-45	20-35	15-30	15-30	10-25	50-60	NP-5
	20-38	Very cobbly clay loam, extremely cobbly loam, extremely gravelly loam	GC, GP-GC, GC-GM	A-1, A-2	0-10	35-55	20-50	15-45	15-35	10-35	20-35	5-15
	38-47	Very paragravelly loam, extremely paragravelly clay loam, very paragravelly clay loam	CL, CL-ML	A-6, A-4	0	0-10	85-100	80-100	65-85	50-60	20-35	5-15
	47-51	Weathered bedrock			---	---	---	---	---	---	---	---
	51-55	Unweathered bedrock			---	---	---	---	---	---	---	---
75:												
Harslow---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Very gravelly medial loam	GM, GP-GM	A-1	0	0-30	25-40	20-35	15-30	10-25	50-60	NP-5
	6-11	Very gravelly medial loam	GM, GP-GM	A-2, A-1	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	11-17	Very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	17-26	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-65	20-55	15-50	15-45	10-35	50-60	NP-5
	26-34	Extremely gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1	0	0-60	20-35	15-30	15-30	10-25	50-60	NP-5
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
75:												
Kilchis---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Cobbly medial loam	SM, GM	A-5	0-15	25-35	65-80	60-75	50-65	35-50	50-60	NP-5
	9-14	Extremely cobbly loam, very cobbly loam, very gravelly loam	SC, GC, GC-GM	A-4, A-1	0-20	35-50	30-70	25-65	20-50	15-40	25-30	5-10
	14-17	Extremely cobbly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GC	A-1, A-2	10-25	35-45	25-70	20-65	20-50	15-35	20-30	5-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
76:												
Harslow---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Very gravelly medial loam	GM, GP-GM	A-1	0	0-30	25-40	20-35	15-30	10-25	50-60	NP-5
	6-11	Very gravelly medial loam	GM, GP-GM	A-2, A-1	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	11-17	Very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	17-26	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-65	20-55	15-50	15-45	10-35	50-60	NP-5
	26-34	Extremely gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1	0	0-60	20-35	15-30	15-30	10-25	50-60	NP-5
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
76:												
Klistan----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-17	Very gravelly medial loam	GM	A-2, A-1	0	0-15	35-50	30-45	25-45	20-35	50-60	NP-5
	17-25	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-2, A-1	0	30-65	25-50	20-45	20-40	15-30	50-60	NP-5
	25-43	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-1, A-2	0	25-65	25-50	20-45	20-45	15-35	50-60	NP-5
	43-56	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0	25-60	25-50	20-45	15-45	10-35	50-60	NP-5
	56-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
77:												
Hazelair--------	0-7	Silty clay loam	ML	A-4, A-6	0	0	95-100	90-100	85-100	80-95	25-40	5-15
	7-11	Silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	11-18	Silty clay, silty clay loam, clay	CL	A-7	0	0	95-100	90-100	85-100	80-95	40-50	20-30
	18-24	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	24-30	Clay, paragravelly clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
78:												
Hazelair--------	0-7	Silty clay loam	ML	A-4, A-6	0	0	95-100	90-100	85-100	80-95	25-40	5-15
	7-11	Silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	11-18	Silty clay, silty clay loam, clay	CL	A-7	0	0	95-100	90-100	85-100	80-95	40-50	20-30
	18-24	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	24-30	Clay, paragravelly clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
79:												
Hazelair--------	0-7	Silty clay loam	ML	A-4, A-6	0	0	95-100	90-100	85-100	80-95	25-40	5-15
	7-11	Silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	11-18	Silty clay, silty clay loam, clay	CL	A-7	0	0	95-100	90-100	85-100	80-95	40-50	20-30
	18-24	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	24-30	Clay, paragravelly clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---
80:												
Hazelair--------	0-4	Silty clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	85-100	75-95	35-50	15-20
	4-11	Silty clay loam	CL, ML	A-7, A-6	0	0-5	95-100	90-100	85-100	75-95	35-50	15-20
	11-15	Clay, silty clay loam, silty clay	CH, CL	A-7	0	0-5	95-100	90-100	85-100	80-95	40-60	20-30
	15-21	Clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-50
	21-36	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-50
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
81:												
Helmick---------	0-5	Silt loam	ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	80-95	25-40	5-15
	5-10	Silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	10-16	Silty clay, silty clay loam	CL	A-7	0	0	95-100	90-100	85-100	80-95	40-50	15-25
	16-22	Clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	22-28	Clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	28-36	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	36-50	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	85-100	60-80	40-50
	50-62	Paragravelly clay, clay	CH	A-7	0	0	95-100	90-100	85-100	85-95	60-80	40-50
82:												
Helvetia--------	0-5	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	90-100	85-100	80-95	25-40	5-15
	5-10	Silt loam, silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	10-16	Silty clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	90-100	85-100	80-95	40-55	15-25
	16-28	Silty clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	90-100	90-100	90-100	40-55	15-25
	28-48	Silty clay, silty clay loam	CH, CL, MH	A-7	0	0	95-100	90-100	90-100	90-100	40-55	15-25
	48-60	Silty clay, silty clay loam, silt loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	30-50	10-25

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
83:												
Hemcross--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	4-10	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	10-19	Medial loam	MH, SM	A-5	0	0	80-100	75-100	60-90	40-70	50-60	NP-5
	19-26	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	26-38	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	38-48	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	48-68	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
Klistan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-17	Very gravelly medial loam	GM	A-2, A-1	0	0-15	35-50	30-45	25-45	20-35	50-60	NP-5
	17-25	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-2, A-1	0	30-65	25-50	20-45	20-40	15-30	50-60	NP-5
	25-43	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-1, A-2	0	25-65	25-50	20-45	20-45	15-35	50-60	NP-5
	43-56	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0	25-60	25-50	20-45	15-45	10-35	50-60	NP-5
	56-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
84:												
Hemcross--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	4-10	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	10-19	Medial loam	MH, SM	A-5	0	0	80-100	75-100	60-90	40-70	50-60	NP-5
	19-26	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	26-38	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	38-48	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	48-68	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
Klistan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-17	Very gravelly medial loam	GM	A-2, A-1	0	0-15	35-50	30-45	25-45	20-35	50-60	NP-5
	17-25	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-2, A-1	0	30-65	25-50	20-45	20-40	15-30	50-60	NP-5
	25-43	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-1, A-2	0	25-65	25-50	20-45	20-45	15-35	50-60	NP-5
	43-56	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0	25-60	25-50	20-45	15-45	10-35	50-60	NP-5
	56-60	Unweathered bedrock			---	---	---	---	---	---	---	---
85:												
Holcomb---------	0-6	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	90-100	90-100	85-100	25-40	5-15
	6-18	Silty clay loam, silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	90-100	90-100	85-100	25-40	5-15
	18-24	Silty clay loam, silt loam	ML, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
	24-34	Clay, silty clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	34-50	Clay, silty clay	CH	A-7	0	0	80-100	75-100	75-100	70-100	55-70	35-45
	50-60	Silt loam, silty clay loam, clay loam	ML, CL-ML	A-4, A-6, A-7	0	0	80-100	75-100	70-100	60-95	30-50	5-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
86:												
Honeygrove	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Paragravelly silty clay loam	CL	A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	6-17	Silty clay loam, paragravelly silty clay loam	CL	A-7, A-6	0	0	85-100	80-100	80-100	70-95	40-50	15-25
	17-31	Paragravelly silty clay, silty clay, clay	CH, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	31-43	Clay, paragravelly silty clay, silty clay	CH, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	43-56	Clay, paragravelly silty clay, silty clay	CH, CL, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	56-75	Clay, silty clay, paragravelly silty clay	CH, CL, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	75-85	Weathered bedrock			---	---	---	---	---	---	---	---
Peavine, sedimentary bedrock	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Paragravelly silty clay loam	CL	A-6, A-4	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	4-17	Silty clay loam, silty clay, paragravelly silty clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	30-50	10-25
	17-23	Very paragravelly silty clay, clay, paragravelly silty clay	CL	A-7	0	0	95-100	90-100	85-100	80-95	45-60	20-30
	23-31	Paragravelly silty clay, very paragravelly silty clay, clay	MH, CH	A-7	0	0	95-100	90-100	85-100	80-95	45-60	20-30
	31-36	Paragravelly silty clay, very paragravelly silty clay, clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
87:												
Honeygrove------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Paragravelly silty clay loam	CL	A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	6-17	Silty clay loam, paragravelly silty clay loam	CL	A-7, A-6	0	0	85-100	80-100	80-100	70-95	40-50	15-25
	17-31	Paragravelly silty clay, silty clay, clay	CH, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	31-43	Clay, paragravelly silty clay, silty clay	CH, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	43-56	Clay, paragravelly silty clay, silty clay	CH, CL, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	56-75	Clay, silty clay, paragravelly silty clay	CH, CL, MH	A-7	0	0	85-100	80-100	80-100	65-95	45-60	20-30
	75-85	Weathered bedrock			---	---	---	---	---	---	---	---
Peavine, sedimentary bedrock--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Paragravelly silty clay loam	CL	A-6, A-4	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	4-17	Silty clay loam, silty clay, paragravelly silty clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	30-50	10-25
	17-23	Very paragravelly silty clay, clay, paragravelly silty clay	CL	A-7	0	0	95-100	90-100	85-100	80-95	45-60	20-30
	23-31	Paragravelly silty clay, very paragravelly silty clay, clay	MH, CH	A-7	0	0	95-100	90-100	85-100	80-95	45-60	20-30
	31-36	Paragravelly silty clay, very paragravelly silty clay, clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
88:												
Honeygrove, basalt bedrock	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silty clay loam	CL	A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	9-15	Paragravelly silty clay loam, silty clay loam, silty clay	CL	A-7	0	0	85-100	80-100	80-100	70-95	40-50	15-25
	15-22	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	22-37	Clay, silty clay, paragravelly silty clay	CH, MH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	37-50	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	50-67	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
Peavine, basalt bedrock--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Silty clay loam	CL	A-6	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	6-13	Silty clay, silty clay loam, paragravelly silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	30-50	10-25
	13-32	Silty clay, clay, paragravelly clay	CH, MH	A-7	0	0	95-100	90-100	85-100	80-95	45-60	20-30
	32-37	Clay, paragravelly silty clay, very paragravelly silty clay	CH, MH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	37-47	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
89:												
Honeygrove, basalt bedrock	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silty clay loam	CL	A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	9-15	Paragravelly silty clay loam, silty clay loam, silty clay	CL	A-7	0	0	85-100	80-100	80-100	70-95	40-50	15-25
	15-22	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	22-37	Clay, silty clay, paragravelly silty clay	CH, MH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	37-50	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	50-67	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
Peavine, basalt bedrock--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Silty clay loam	CL	A-6	0	0	95-100	90-100	85-100	75-95	30-40	10-15
	6-13	Silty clay, silty clay loam, paragravelly silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	30-50	10-25
	13-32	Silty clay, clay, paragravelly clay	CH, MH	A-7	0	0	95-100	90-100	85-100	80-95	45-60	20-30
	32-37	Clay, paragravelly silty clay, very paragravelly silty clay	CH, MH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	37-47	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
90:												
Honeygrove, basalt bedrock	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silty clay loam	CL	A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	9-15	Paragravelly silty clay loam, silty clay loam, silty clay	CL	A-7	0	0	85-100	80-100	80-100	70-95	40-50	15-25
	15-22	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	22-37	Clay, silty clay, paragravelly silty clay	CH, MH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	37-50	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	50-67	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
Shivigny--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Very gravelly clay loam	GC	A-2	0	0-20	30-55	25-50	15-45	15-40	30-40	10-15
	7-13	Very gravelly clay loam, extremely gravelly silty clay	GC	A-2, A-7	0	0-20	20-55	15-50	10-45	10-45	35-50	15-25
	13-23	Extremely gravelly silty clay, very cobbly silty clay, extremely cobbly silty clay	GC, GM	A-2, A-7	0-20	20-60	20-55	15-50	10-45	10-45	45-55	20-25
	23-34	Extremely gravelly silty clay, extremely cobbly silty clay, very cobbly silty clay	GC, GM	A-7, A-2	0-20	20-55	20-60	15-55	15-45	15-45	45-55	20-25
	34-43	Extremely cobbly silty clay, extremely gravelly silty clay, very cobbly silty clay	GC, GM	A-2, A-7	0-20	20-50	20-60	15-55	15-55	15-50	45-55	20-25
	43-68	Extremely cobbly silty clay, extremely gravelly silty clay, very cobbly silty clay	GC, GM	A-2, A-7	0-20	20-50	20-60	15-55	15-55	15-50	45-55	20-25
	68-78	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
91:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CH, CL	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40
92:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CL, CH	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40
93:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CH, CL	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
94:												
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65
95:												
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
96:												
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65
97:												
Jory, sedimentary bedrock--------	0-7	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-45
	7-15	Silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	85-95	45-55	20-55
	15-23	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0	95-100	90-100	85-95	80-90	45-55	20-55
	23-35	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	35-51	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	50-60	20-60
	51-60	Paragravelly silty clay, paragravelly clay, clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	55-65	25-65

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
97:												
Dupee-----------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
98:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CH, CL	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40
Gelderman-------	0-5	Silty clay loam	ML	A-7, A-6, A-4	0	0-5	90-100	85-100	80-100	75-95	35-45	10-15
	5-10	Silty clay, clay, silty clay loam	ML	A-5, A-6, A-7	0	0-5	90-100	85-100	80-100	75-95	40-50	10-15
	10-24	Paragravelly clay, paragravelly silty clay, clay, silty clay	ML	A-7, A-5	0	0-10	90-95	85-90	80-90	75-85	40-50	10-20
	24-30	Silty clay, clay, paragravelly silty clay, paragravelly clay	ML	A-7, A-5	0	0-10	90-95	85-90	75-90	65-85	40-50	10-20
	30-40	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
99:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CH, CL	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40
Nekia-----------	0-9	Silty clay loam	ML	A-7, A-4, A-6	0	0-5	90-100	85-100	80-100	75-95	35-45	10-15
	9-18	Silty clay loam, clay, silty clay	ML	A-7	0	0-5	90-100	85-100	80-100	75-95	40-50	10-15
	18-24	Gravelly silty clay, clay, silty clay	ML	A-7	0	0-30	70-100	60-100	60-100	55-95	40-50	10-20
	24-36	Silty clay, clay, cobbly clay, gravelly clay	ML	A-7	0	0-30	70-100	60-100	60-100	55-95	40-50	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
100:												
Jory, basalt bedrock--------	0-6	Silty clay loam	CH, CL	A-5, A-4, A-7, A-6	0	0-10	95-100	90-100	85-100	75-95	35-55	15-25
	6-16	Silty clay, silty clay loam, clay	CH, CL	A-4, A-5, A-6, A-7	0	0-10	95-100	90-100	85-100	75-95	45-60	20-30
	16-19	Clay, silty clay	CH, CL	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	45-60	20-35
	19-29	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	29-48	Clay, silty clay	CH	A-7, A-5	0	0-10	95-100	90-100	85-100	80-95	50-65	25-35
	48-100	Clay, silty clay, cobbly clay, cobbly silty clay	CH	A-7, A-5	0	0-25	85-100	80-100	75-100	65-95	50-65	25-40
Nekia-----------	0-9	Silty clay loam	ML	A-7, A-4, A-6	0	0-5	90-100	85-100	80-100	75-95	35-45	10-15
	9-18	Silty clay loam, clay, silty clay	ML	A-7	0	0-5	90-100	85-100	80-100	75-95	40-50	10-15
	18-24	Gravelly silty clay, clay, silty clay	ML	A-7	0	0-30	70-100	60-100	60-100	55-95	40-50	10-20
	24-36	Silty clay, clay, cobbly clay, gravelly clay	ML	A-7	0	0-30	70-100	60-100	60-100	55-95	40-50	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
101:												
Kirkendall------	0-8	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-30	5-10
	8-17	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-30	5-10
	17-36	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-15
	36-47	Silt loam, silty clay loam, loam	CL	A-6, A-4	0	0	100	100	85-100	65-100	30-40	10-15
	47-68	Silt loam, silty clay loam, loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	65-100	25-35	5-15
Nekoma----------	0-5	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-100	15-30	NP-10
	5-14	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-100	15-30	NP-10
	14-26	Fine sandy loam, silt loam, loam	ML, SC-SM	A-4	0	0	100	100	70-100	40-100	15-20	NP-5
	26-48	Stratified fine sandy loam to loamy fine sand	ML, SM	A-2, A-4	0	0	100	100	70-95	30-65	15-20	NP-5
	48-60	Stratified loamy fine sand to fine sandy loam	SM, ML	A-2, A-4	0	0	100	100	75-95	30-65	15-20	NP-5
Quosatana-------	0-14	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	14-39	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-100	30-40	10-15
	39-48	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-100	30-40	10-15
	48-65	Stratified loam to silty clay	CL	A-4, A-6, A-7	0	0	100	100	85-100	60-95	30-45	10-20
102:												
Klistan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-17	Very gravelly medial loam	GM	A-2, A-1	0	0-15	35-50	30-45	25-45	20-35	50-60	NP-5
	17-25	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-2, A-1	0	30-65	25-50	20-45	20-40	15-30	50-60	NP-5
	25-43	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-1, A-2	0	25-65	25-50	20-45	20-45	15-35	50-60	NP-5
	43-56	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0	25-60	25-50	20-45	15-45	10-35	50-60	NP-5
	56-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
102:												
Harslow---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Very gravelly medial loam	GM, GP-GM	A-1	0	0-30	25-40	20-35	15-30	10-25	50-60	NP-5
	6-11	Very gravelly medial loam	GM, GP-GM	A-2, A-1	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	11-17	Very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	17-26	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-65	20-55	15-50	15-45	10-35	50-60	NP-5
	26-34	Extremely gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1	0	0-60	20-35	15-30	15-30	10-25	50-60	NP-5
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---
103:												
Klistan---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-17	Very gravelly medial loam	GM	A-2, A-1	0	0-15	35-50	30-45	25-45	20-35	50-60	NP-5
	17-25	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-2, A-1	0	30-65	25-50	20-45	20-40	15-30	50-60	NP-5
	25-43	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM	A-1, A-2	0	25-65	25-50	20-45	20-45	15-35	50-60	NP-5
	43-56	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0	25-60	25-50	20-45	15-45	10-35	50-60	NP-5
	56-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
103:												
Harslow---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Very gravelly medial loam	GM, GP-GM	A-1	0	0-30	25-40	20-35	15-30	10-25	50-60	NP-5
	6-11	Very gravelly medial loam	GM, GP-GM	A-2, A-1	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	11-17	Very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-30	25-40	20-35	15-35	10-30	50-60	NP-5
	17-26	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-1, A-2	0	0-65	20-55	15-50	15-45	10-35	50-60	NP-5
	26-34	Extremely gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1	0	0-60	20-35	15-30	15-30	10-25	50-60	NP-5
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Hemcross--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	4-10	Medial loam	MH, SM	A-5	0	0	75-100	70-100	60-90	40-70	50-60	NP-5
	10-19	Medial loam	MH, SM	A-5	0	0	80-100	75-100	60-90	40-70	50-60	NP-5
	19-26	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	26-38	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	38-48	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
	48-68	Medial loam, medial clay loam	MH, SM	A-5	0	0-15	70-90	65-85	65-85	45-70	50-60	NP-5
104:												
Laderly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Very gravelly medial loam	GM	A-1, A-2	0	0-30	25-45	20-40	20-40	15-30	50-60	NP-5
	15-29	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-30	0-90	15-55	10-50	10-45	10-35	50-60	NP-5
	29-37	Very cobbly medial loam, very gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-25	0-85	15-55	10-50	10-45	10-35	50-60	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
104:												
Murtip----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-19	Medial loam	MH, SM	A-5	0	0	70-100	65-100	55-95	40-75	50-60	NP-5
	19-31	Medial loam, gravelly medial clay loam, gravelly medial loam	GM, MH, SM	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	31-45	Gravelly medial loam, gravelly medial clay loam, medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	45-56	Gravelly medial clay loam, gravelly medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-75	40-70	40-70	30-55	50-60	NP-5
	56-66	Weathered bedrock			---	---	---	---	---	---	---	---
Giveout---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-16	Gravelly medial loam	GM, SM	A-5, A-2	0	0-10	50-70	45-65	40-55	30-45	50-60	NP-5
	16-28	Gravelly medial loam, medial clay loam, paracobbly medial loam	GM, MH, SM	A-5, A-2	0	0-10	55-90	50-85	40-85	30-65	50-60	NP-5
	28-36	Paracobbly medial loam, gravelly medial loam, medial clay loam	MH, GM, SM	A-5, A-2	0	0-10	55-90	50-85	40-85	30-65	50-60	NP-5
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
105:												
Linslaw---------	0-5	Loam	ML	A-4	0	0	95-100	95-100	80-95	60-75	25-40	2-10
	5-16	Loam	ML	A-4	0	0	95-100	95-100	80-95	60-75	25-40	2-10
	16-28	Clay, clay loam	ML, CL	A-7, A-6	0	0	95-100	95-100	85-100	65-80	35-50	10-25
	28-42	Clay loam, clay	CL, ML	A-7, A-6	0	0	95-100	95-100	85-100	65-80	35-50	10-25
	42-56	Clay	CH, MH	A-7	0	0	95-100	95-100	85-100	70-95	50-60	20-30
	56-60	Sandy loam, sandy clay loam	ML, SM	A-4, A-2	0	0	95-100	95-100	60-90	30-55	20-40	NP-10
106:												
Linslaw---------	0-5	Loam	ML	A-4	0	0	95-100	95-100	80-95	60-75	25-40	2-10
	5-16	Loam	ML	A-4	0	0	95-100	95-100	80-95	60-75	25-40	2-10
	16-28	Clay, clay loam	ML, CL	A-7, A-6	0	0	95-100	95-100	85-100	65-80	35-50	10-25
	28-42	Clay loam, clay	CL, ML	A-7, A-6	0	0	95-100	95-100	85-100	65-80	35-50	10-25
	42-56	Clay	CH, MH	A-7	0	0	95-100	95-100	85-100	70-95	50-60	20-30
	56-60	Sandy loam, sandy clay loam	ML, SM	A-4, A-2	0	0	95-100	95-100	60-90	30-55	20-40	NP-10

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
107:												
Lurnick---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Very cobbly medial loam	GM	A-5	0-15	60-70	50-70	45-65	45-65	35-50	50-60	NP-5
	8-22	Extremely cobbly sandy clay loam, very cobbly loam, extremely cobbly sandy loam	SC-SM, GC-GM, GC, GP-GC	A-1, A-4	0-20	50-65	25-65	20-60	15-55	10-45	20-30	5-10
	22-29	Very cobbly loam, extremely cobbly sandy clay loam, extremely cobbly sandy loam	SC-SM, GC-GM, GC, GP-GC	A-1, A-4	0-20	45-60	25-65	20-60	15-55	10-45	20-30	5-10
	29-36	Very cobbly loam, extremely cobbly sandy clay loam, extremely cobbly sandy loam	GC, GC-GM, GP-GC	A-1, A-4	0-20	45-60	25-65	20-60	15-50	10-40	20-30	5-10
	36-40	Weathered bedrock			---	---	---	---	---	---	---	---
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Luckiamute------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Extremely cobbly medial loam	GM, GP-GM	A-1	0-25	70-80	20-45	15-40	10-35	10-25	50-60	NP-5
	6-17	Extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC, GC-GM	A-1, A-2	0-20	60-65	30-70	25-65	20-65	15-50	25-35	5-15
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
108:												
Lurnick---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Very cobbly medial loam	GM	A-5	0-15	60-70	50-70	45-65	45-65	35-50	50-60	NP-5
	8-22	Extremely cobbly sandy clay loam, very cobbly loam, extremely cobbly sandy loam	SC-SM, GC-GM, GC, GP-GC	A-1, A-4	0-20	50-65	25-65	20-60	15-55	10-45	20-30	5-10
	22-29	Very cobbly loam, extremely cobbly sandy clay loam, extremely cobbly sandy loam	SC-SM, GC-GM, GC, GP-GC	A-1, A-4	0-20	45-60	25-65	20-60	15-55	10-45	20-30	5-10
	29-36	Very cobbly loam, extremely cobbly sandy clay loam, extremely cobbly sandy loam	GC, GC-GM, GP-GC	A-1, A-4	0-20	45-60	25-65	20-60	15-50	10-40	20-30	5-10
	36-40	Weathered bedrock			---	---	---	---	---	---	---	---
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
108:												
Luckiamute------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Extremely cobbly medial loam	GM, GP-GM	A-1	0-25	70-80	20-45	15-40	10-35	10-25	50-60	NP-5
	6-17	Extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC, GC-GM	A-1, A-2	0-20	60-65	30-70	25-65	20-65	15-50	25-35	5-15
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Maryspeak-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Gravelly medial sandy loam	GP-GM, GM, SM	A-1	0	0-15	45-70	40-65	25-50	10-25	50-60	NP-5
	4-9	Gravelly medial sandy loam	GM, GP-GM, SM	A-1	0	0-15	50-70	45-65	25-50	10-25	50-60	NP-5
	9-13	Very gravelly loamy sand, very gravelly sandy loam, very gravelly loamy fine sand	GC-GM, GM, GP-GC, GP-GM	A-1	0	0-10	30-50	25-45	15-35	10-15	15-25	NP-5
	13-34	Very gravelly loamy fine sand, very gravelly loamy sand, very gravelly sand	GC-GM, GM, GP-GC, GP-GM	A-1	0	0-10	35-50	30-45	15-45	5-20	15-25	NP-5
	34-59	Very gravelly loamy sand, very gravelly loamy fine sand, very gravelly sand	GC-GM, GM, GP-GM	A-1	0	0-20	35-50	30-45	15-45	5-20	15-20	NP-5
	59-73	Very gravelly loamy sand, very gravelly sandy loam, very gravelly loamy fine sand	GC-GM, GM, GP-GC, GP-GM	A-1	0	0-15	35-55	30-50	15-45	5-20	15-25	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
109:												
MacDunn---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly silty clay loam	CL	A-6, A-7	0-5	10-15	65-75	60-75	55-75	50-70	35-45	15-20
	7-15	Gravelly silty clay loam, gravelly clay loam	CL, GC	A-6, A-7	0-5	10-15	65-75	60-75	55-75	45-70	35-45	15-20
	15-24	Extremely cobbly clay loam, very cobbly silty clay, very cobbly silty clay loam, very cobbly clay	GC	A-2, A-7	0-10	45-75	25-55	20-55	20-55	15-50	40-55	15-30
	24-38	Extremely cobbly clay loam, very cobbly silty clay, very cobbly silty clay loam, very cobbly clay	GC	A-2, A-7	0-10	45-75	25-55	20-55	20-55	15-50	40-55	15-30
	38-51	Extremely cobbly silty clay loam, extremely cobbly clay, extremely cobbly silty clay, very cobbly clay loam	GC	A-2, A-7	0-10	45-75	25-35	20-55	20-55	15-50	40-55	15-30
	51-61	Weathered bedrock			---	---	---	---	---	---	---	---
Price-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Silty clay loam	CL	A-6, A-7	0-5	0-10	90-100	75-90	70-90	65-85	35-45	15-20
	8-17	Clay, silty clay loam, gravelly silty clay, silty clay	CH, CL	A-7	0	0-15	65-90	60-85	55-85	50-80	40-55	15-30
	17-31	Cobbly silty clay loam, clay, gravelly silty clay, silty clay	CL, CH	A-7	0	0-30	65-90	60-85	55-85	50-80	40-55	15-30
	31-54	Cobbly silty clay loam, clay, gravelly silty clay, silty clay	CL, CH	A-7	0	0-30	65-90	60-85	55-85	50-80	40-55	15-30
	54-86	Cobbly clay, cobbly silty clay, gravelly silty clay loam	CL, CH	A-7	0	10-30	65-90	60-85	55-85	50-80	40-55	15-30
	86-90	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
109:												
Ritner----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly silty clay loam	CL	A-7, A-6	0	0-15	65-80	60-75	55-70	50-65	35-45	15-20
	6-16	Gravelly silty clay loam, cobbly silty clay loam, very cobbly silty clay loam	GC, CL	A-7, A-6	0	0-30	55-80	50-75	50-70	40-65	35-45	15-20
	16-25	Extremely cobbly silty clay, very cobbly clay, very cobbly silty clay, very cobbly silty clay loam	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	25-39	Very cobbly silty clay loam, very cobbly silty clay, extremely cobbly silty clay, extremely cobbly clay	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
110:												
Malabon---------	0-7	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	80-100	75-95	35-45	10-15
	7-12	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	12-19	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	19-29	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	29-42	Silty clay loam, silty clay	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	42-60	Sandy clay loam, fine sandy loam, loam, clay loam	ML, SM	A-4, A-6, A-2	0	0	90-100	85-100	60-100	30-70	25-40	NP-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
111:												
Malabon, rarely flooded--------	0-6	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	6-12	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	12-18	Silty clay, silty clay loam	ML, CL	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	18-34	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	34-47	Silty clay, silty clay loam	CL, ML	A-7	0	0	95-100	90-100	85-100	75-95	40-50	15-20
	47-58	Silty clay loam, silty clay	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-50	10-20
	58-63	Sandy clay loam, fine sandy loam, loam, clay loam	ML, SM	A-4, A-6, A-2	0	0	95-100	85-100	60-100	30-75	25-40	NP-15
112:												
Maryspeak-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Gravelly medial sandy loam	GP-GM, GM, SM	A-1	0	0-15	45-70	40-65	25-50	10-25	50-60	NP-5
	4-9	Gravelly medial sandy loam	GM, GP-GM, SM	A-1	0	0-15	50-70	45-65	25-50	10-25	50-60	NP-5
	9-13	Very gravelly loamy sand, very gravelly sandy loam, very gravelly loamy fine sand	GC-GM, GM, GP-GC, GP-GM	A-1	0	0-10	30-50	25-45	15-35	10-15	15-25	NP-5
	13-34	Very gravelly loamy fine sand, very gravelly loamy sand, very gravelly sand	GC-GM, GM, GP-GC, GP-GM	A-1	0	0-10	35-50	30-45	15-45	5-20	15-25	NP-5
	34-59	Very gravelly loamy sand, very gravelly loamy fine sand, very gravelly sand	GC-GM, GM, GP-GM	A-1	0	0-20	35-50	30-45	15-45	5-20	15-20	NP-5
	59-73	Very gravelly loamy sand, very gravelly sandy loam, very gravelly loamy fine sand	GC-GM, GM, GP-GC, GP-GM	A-1	0	0-15	35-55	30-50	15-45	5-20	15-25	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
113:												
McAlpin---------	0-5	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	5-8	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	8-14	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	14-23	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-5	85-100	80-100	70-100	60-100	35-55	15-30
	23-37	Clay, silty clay	CL, CH	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	37-51	Silty clay, clay	CH, CL	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	51-65	Very gravelly clay, clay, silty clay, gravelly silty clay	CL, GC, CH	A-7, A-2	0	0-15	40-100	35-95	30-95	25-90	40-55	15-30
114:												
McAlpin---------	0-5	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	5-8	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	8-14	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	14-23	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0-5	85-100	80-100	70-100	60-100	35-55	15-30
	23-37	Clay, silty clay	CL, CH	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	37-51	Silty clay, clay	CH, CL	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	51-65	Very gravelly clay, clay, silty clay, gravelly silty clay	CL, GC, CH	A-7, A-2	0	0-15	40-100	35-95	30-95	25-90	40-55	15-30
115:												
McAlpin, high precipitation--	0-5	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	5-8	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	8-14	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	14-23	Clay, silty clay, silty clay loam	CH, CL, ML	A-7, A-6	0	0-5	85-100	80-100	70-100	60-100	35-55	15-30
	23-37	Clay, silty clay	CL, CH	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	37-51	Silty clay, clay	CH, CL	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	51-65	Cobbly clay, silty clay, very gravelly silty clay	CL, GC, CH	A-7, A-2	0	0-15	40-100	35-95	30-95	25-90	40-55	15-30

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
116:												
McAlpin, high precipitation--	0-5	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	5-8	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	8-14	Silty clay loam	CL, ML	A-7, A-6	0	0-5	85-100	80-100	75-100	70-95	35-45	10-20
	14-23	Clay, silty clay, silty clay loam	CH, CL, ML	A-7, A-6	0	0-5	85-100	80-100	70-100	60-100	35-55	15-30
	23-37	Clay, silty clay	CL, CH	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	37-51	Silty clay, clay	CH, CL	A-7	0	0-10	85-100	80-100	70-100	60-100	40-55	15-30
	51-65	Cobbly clay, silty clay, very gravelly silty clay	CL, GC, CH	A-7, A-2	0	0-15	40-100	35-95	30-95	25-90	40-55	15-30
117:												
McAlpin, rarely flooded--------	0-5	Silty clay loam	CL, ML	A-6, A-7	0	0	80-100	75-100	70-100	65-95	35-45	10-20
	5-14	Silty clay loam	CL, ML	A-6, A-7	0	0	80-100	75-100	70-100	65-95	35-45	10-20
	14-22	Clay, silty clay, silty clay loam	CH, CL	A-7, A-6	0	0	80-100	75-100	70-100	65-95	35-55	15-30
	22-31	Clay, silty clay	CL, CH	A-7	0	0	80-100	75-100	70-100	65-95	40-55	15-30
	31-54	Silty clay, clay	CL, CH	A-7	0	0	80-100	75-100	70-100	65-95	40-55	15-30
	54-60	Silty clay, clay, gravelly silty clay, very gravelly clay	CL, CH, GC	A-7, A-2	0	0-15	35-95	30-90	25-90	20-85	40-55	15-30
118:												
McBee-----------	0-7	Silty clay loam	ML	A-7, A-6	0	0	100	100	95-100	85-95	35-45	10-15
	7-10	Silty clay loam	CL, ML	A-7, A-6	0	0	100	100	95-100	85-95	35-50	10-20
	10-22	Silt loam, clay loam, silty clay loam	CL, ML	A-7, A-6	0	0	100	100	95-100	80-95	35-50	10-20
	22-35	Silt loam, clay loam, silty clay loam	CL, ML	A-6, A-7	0	0	100	100	90-100	80-95	35-50	10-20
	35-42	Silty clay loam, clay loam, silt loam	CL, ML	A-6, A-7	0	0	80-100	75-100	70-100	55-95	35-50	10-20
	42-65	Silt loam, gravelly loam, silty clay loam, clay loam, silty clay	CL, GC	A-6, A-7	0	0	55-100	50-100	45-100	40-95	35-50	10-25

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
119:												
McBee, nonflooded-----	0-6	Silty clay loam	ML	A-7, A-6	0	0	100	100	95-100	85-95	35-45	10-15
	6-12	Silty clay loam	CL, ML	A-7, A-6	0	0	100	100	95-100	85-95	35-50	10-20
	12-25	Clay loam, silt loam, silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-50	10-20
	25-40	Silty clay loam, clay loam, silt loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-50	10-20
	40-60	Silt loam, silty clay loam, clay loam, gravelly loam, silty clay	CL, GC	A-6, A-7	0	0	55-100	50-100	45-100	40-95	35-50	10-25
120:												
Meda------------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-13	Gravelly loam	SC, GC, GC-GM	A-4, A-2	0	0	55-75	50-70	40-65	30-50	25-30	5-10
	13-18	Gravelly loam, clay loam	GC, CL, SC, GC-GM	A-2, A-4	0	0	55-75	50-70	40-70	30-55	25-40	5-15
	18-30	Gravelly clay loam, gravelly loam, clay loam	CL, GC, SC	A-2, A-4	0	0-5	55-80	50-75	40-70	30-55	30-40	10-15
	30-34	Gravelly clay loam, gravelly loam, clay loam	CL, GC, SC	A-2, A-6	0	0-5	55-80	50-75	40-70	30-55	30-40	10-15
	34-66	Very gravelly sandy loam, very gravelly loam, gravelly sandy loam	SM, GM, GP-GM	A-1, A-2, A-4	0	0-25	40-60	35-55	25-50	10-40	0-20	NP-10
Treharne--------	0-6	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-25	5-10
	6-14	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-25	5-10
	14-21	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-100	25-40	5-15
	21-32	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-100	25-40	5-15
	32-68	Silt loam, silty clay loam, silty clay	CL	A-4, A-6	0	0	100	100	90-100	70-100	25-45	10-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
120:												
Wasson----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-11	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-65	20-25	5-10
	11-15	Very fine sandy loam	ML	A-4	0	0	100	100	85-95	50-65	15-20	NP-5
	15-33	Stratified loamy fine sand to very fine sandy loam	SM, ML	A-4, A-2	0	0	100	100	75-95	30-65	15-20	NP-5
	33-66	Stratified fine sandy loam to loamy fine sand	SM, ML	A-4, A-2	0	0	100	100	70-95	30-65	15-20	NP-5
121:												
Mulkey----------	0-10	Medial loam	MH, OH	A-5	0	0-10	80-100	75-100	50-90	40-70	50-60	NP-5
	10-19	Gravelly medial loam, medial loam	MH, GM	A-5, A-2	0	0-25	50-100	45-100	40-90	30-70	50-60	NP-5
	19-26	Cobbly medial loam, cobbly medial sandy loam, gravelly medial loam	MH, GM	A-5, A-2	0-15	15-50	60-100	55-100	35-90	25-70	50-60	NP-5
	26-30	Unweathered bedrock			---	---	---	---	---	---	---	---
122:												
Mulkey----------	0-10	Medial loam	MH, OH	A-5	0	0-10	80-100	75-100	50-90	40-70	50-60	NP-5
	10-19	Gravelly medial loam, medial loam	MH, GM	A-5, A-2	0	0-25	50-100	45-100	40-90	30-70	50-60	NP-5
	19-26	Cobbly medial loam, cobbly medial sandy loam, gravelly medial loam	MH, GM	A-5, A-2	0-15	15-50	60-100	55-100	35-90	25-70	50-60	NP-5
	26-30	Unweathered bedrock			---	---	---	---	---	---	---	---
123:												
Murtip----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-19	Medial loam	MH, SM	A-5	0	0	70-100	65-100	55-95	40-75	50-60	NP-5
	19-31	Medial loam, gravelly medial clay loam, gravelly medial loam	GM, MH, SM	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	31-45	Gravelly medial loam, gravelly medial clay loam, medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-100	40-100	40-95	30-75	50-60	NP-5
	45-56	Gravelly medial clay loam, gravelly medial loam	GM, SM, MH	A-2, A-5	0	0-15	45-75	40-70	40-70	30-55	50-60	NP-5
	56-66	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
123:												
Giveout---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-16	Gravelly medial loam	GM, SM	A-5, A-2	0	0-10	50-70	45-65	40-55	30-45	50-60	NP-5
	16-28	Gravelly medial loam, medial clay loam, paracobbly medial loam	GM, MH, SM	A-5, A-2	0	0-10	55-90	50-85	40-85	30-65	50-60	NP-5
	28-36	Paracobbly medial loam, gravelly medial loam, medial clay loam	MH, GM, SM	A-5, A-2	0	0-10	55-90	50-85	40-85	30-65	50-60	NP-5
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
Laderly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-15	Very gravelly medial loam	GM	A-1, A-2	0	0-30	25-45	20-40	20-40	15-30	50-60	NP-5
	15-29	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-30	0-90	15-55	10-50	10-45	10-35	50-60	NP-5
	29-37	Very cobbly medial loam, very gravelly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-2	0-25	0-85	15-55	10-50	10-45	10-35	50-60	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
124:												
Nekoma----------	0-5	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-100	15-30	NP-10
	5-14	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	70-100	15-30	NP-10
	14-26	Fine sandy loam, silt loam, loam	ML, SC-SM	A-4	0	0	100	100	70-100	40-100	15-20	NP-5
	26-48	Stratified fine sandy loam to loamy fine sand	ML, SM	A-2, A-4	0	0	100	100	70-95	30-65	15-20	NP-5
	48-60	Stratified loamy fine sand to fine sandy loam	SM, ML	A-2, A-4	0	0	100	100	75-95	30-65	15-20	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
124:												
Fluvaquents	0-7	Gravelly clay loam, gravelly silty clay loam, silt loam	GM, ML, CL-ML	A-6, A-4	0	0	60-100	55-100	50-100	35-95	15-40	NP-15
	7-28	Stratified silt loam to very gravelly sandy loam	GM, ML, SM, GP-GM, CL, CL-ML	A-1, A-2, A-6, A-4	0	0-30	35-100	30-100	20-100	10-90	15-35	NP-15
	28-44	Stratified loamy sand to very gravelly fine sandy loam	GM, ML, SM, GP-GM, CL-ML	A-1, A-2, A-4	0	0-30	35-100	30-100	20-100	10-90	15-30	NP-10
	44-66	Stratified silt loam to very gravelly sandy loam	GM, ML, SM, GP-GM	A-1, A-2, A-4	0	0-30	35-100	30-100	20-100	10-90	15-30	NP-10
125:												
Newberg	0-7	Fine sandy loam	SM, ML	A-4	0	0	90-100	85-100	60-85	35-50	15-30	NP-10
	7-19	Fine sandy loam	SM, ML	A-4	0	0	90-100	85-100	60-85	35-55	15-30	NP-10
	19-28	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4, A-1	0	0	80-100	75-100	45-85	20-55	15-30	NP-10
	28-48	Stratified loamy fine sand to fine sandy loam	SM	A-2, A-4, A-1	0	0	80-100	75-100	40-80	10-50	0-20	NP-5
	48-64	Stratified fine sand to fine sandy loam	SM	A-1, A-2, A-4	0	0-10	80-100	75-100	40-80	10-50	0-15	NP-5
126:												
Newberg, high precipitation	0-7	Fine sandy loam	SM, ML	A-4	0	0	90-100	85-100	60-85	35-50	15-30	NP-10
	7-19	Fine sandy loam	SM, ML	A-4	0	0	90-100	85-100	60-85	35-55	15-30	NP-10
	19-28	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4, A-1	0	0	80-100	75-100	45-85	20-55	15-30	NP-10
	28-48	Stratified loamy fine sand to fine sandy loam	SM	A-2, A-4, A-1	0	0	80-100	75-100	40-80	10-50	0-20	NP-5
	48-64	Stratified fine sand to fine sandy loam	SM	A-1, A-2, A-4	0	0-10	80-100	75-100	40-80	10-50	0-15	NP-5
127:												
Newberg	0-8	Loam	SM, ML	A-4	0	0	80-100	75-100	65-95	45-75	15-30	NP-10
	8-18	Fine sandy loam	SM	A-4, A-2	0	0	80-100	75-100	50-85	30-55	15-30	NP-10
	18-30	Fine sandy loam, sandy loam, coarse sandy loam	SM, ML	A-2, A-4, A-1	0	0	80-100	75-100	45-85	20-55	15-30	NP-10
	30-46	Stratified fine sand to fine sandy loam	SM	A-2, A-4, A-1	0	0	80-100	75-100	40-85	10-50	0-20	NP-5
	46-60	Stratified fine sand to fine sandy loam	SM	A-1, A-2, A-4	0	0-10	80-100	75-100	40-85	10-50	0-15	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
128:												
Oldblue---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Gravelly medial loam	GM, SM	A-2, A-5	0	0-10	50-75	45-70	35-65	25-50	50-60	NP-5
	6-12	Very paragravelly medial loam, gravelly medial loam	SM, GM	A-2, A-5	0	0-10	50-80	45-75	40-65	30-50	50-60	NP-5
	12-21	Very paragravelly medial loam, paragravelly medial loam	SM, ML	A-5	0	0-10	80-95	75-90	60-85	40-70	40-50	NP-5
	21-38	Extremely paragravelly clay loam, very paragravelly loam, extremely paracobbly clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-80	25-35	10-15
	38-75	Extremely paracobbly clay loam, very paragravelly loam, extremely paragravelly clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-80	25-35	10-15
	75-85	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
128:												
Burntwoods------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-12	Extremely gravelly medial loam	GP-GM, GM	A-1	0-30	15-55	15-35	10-30	10-30	10-25	50-60	NP-5
	12-19	Extremely gravelly medial loam, very gravelly medial loam	GP-GM, GM	A-1	0-30	15-50	20-40	15-35	10-30	10-25	50-60	NP-5
	19-27	Extremely gravelly clay loam, extremely gravelly loam, very gravelly loam	GC	A-2	0-25	25-45	20-45	15-40	15-40	15-30	25-35	10-15
	27-41	Very gravelly loam, extremely gravelly loam, extremely gravelly clay loam	GC	A-2	0-20	20-35	25-50	20-45	20-40	15-30	25-35	10-15
	41-53	Very gravelly loam, extremely gravelly loam, extremely gravelly clay loam	GC	A-2, A-6	0-20	20-35	25-50	20-45	20-40	15-40	25-35	10-15
	53-67	Very gravelly loam, extremely gravelly loam, extremely gravelly clay loam	GC	A-2, A-6	0-20	20-30	25-55	20-50	20-50	15-40	25-35	10-15
129:												
Panther---------	0-8	Silty clay loam	CL	A-7, A-6	0	0-5	95-100	95-100	90-100	80-95	30-45	10-20
	8-14	Silty clay loam	CL	A-7, A-6	0	0-5	95-100	95-100	90-100	80-95	30-45	10-20
	14-24	Clay	CH	A-7	0	0-5	95-100	95-100	90-100	85-95	60-85	35-50
	24-36	Paragravelly clay, clay	CH	A-7	0	0-5	95-100	95-100	90-100	85-95	60-85	35-50
	36-44	Very paragravelly clay, paragravelly clay, clay, extremely paragravelly clay	CH	A-7	0	0	100	100	90-100	85-95	60-85	35-50
	44-54	Weathered bedrock			---	---	---	---	---	---	---	---
130:												
Pengra----------	0-6	Silt loam	ML	A-4	0	0	100	100	90-100	80-95	30-40	NP-10
	6-13	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	85-95	30-45	10-20
	13-21	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	30-45	10-20
	21-36	Clay, gravelly clay	CH	A-7	0	0	90-100	85-100	80-100	75-95	60-85	35-50
	36-60	Clay, gravelly clay	CH	A-7	0	0	90-100	85-100	80-100	75-95	60-85	35-50

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
131:												
Philomath-------	0-4	Silty clay loam	ML, CL	A-7, A-6	0	0-10	80-100	75-100	70-100	65-95	35-50	15-25
	4-8	Cobbly clay, cobbly silty clay, clay, silty clay, silty clay loam	MH, CH, CL	A-7	0	0-30	75-100	70-100	65-100	50-95	45-75	20-35
	8-15	Cobbly silty clay, cobbly clay, silty clay, clay	MH, CH	A-7	0	0-30	65-100	60-100	55-100	50-95	50-80	25-40
	15-25	Weathered bedrock			---	---	---	---	---	---	---	---
132:												
Pilchuck--------	0-7	Fine sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-100	50-85	30-55	15-30	NP-10
	7-45	Stratified sand to loamy fine sand	SM	A-2, A-1	0	0	80-100	75-100	35-80	5-35	0-0	NP-5
	45-62	Stratified sand to very cobbly loamy fine sand	SM, SP-SM, GP-GM, GM, GP	A-1, A-2	0	0-55	40-100	35-100	15-80	0-35	0-0	NP-5
133:												
Pits------------	---	---	---	---	---	---	---	---	---	---	---	---
134:												
Preacher--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-12	Medial loam	MH, SM, OH	A-5	0	0-5	80-90	75-85	60-80	45-65	50-60	NP-5
	12-18	Loam	CL-ML, CL	A-4	0	0-5	85-95	80-90	65-80	50-65	20-30	5-10
	18-29	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	29-44	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	44-53	Sandy loam, loam, clay loam	SC, SC-SM, CL	A-4, A-6	0	0-5	85-95	80-90	55-85	35-65	15-40	5-20
	53-63	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
134:												
Blachly---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Loam	CL-ML, CL	A-4	0	0-10	80-100	75-100	70-90	55-70	20-30	5-10
	7-16	Clay loam, loam	CL	A-4, A-6	0	0-10	85-100	80-100	70-95	55-75	25-40	10-20
	16-27	Paragravelly silty clay, paragravelly silty clay loam, silty clay	CL	A-7, A-6	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	27-54	Silty clay, paragravelly silty clay, paragravelly silty clay loam	CL	A-7	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	54-65	Silty clay, paragravelly silty clay, paragravelly silty clay loam	CL	A-7	0	0-5	85-100	80-100	80-100	70-95	40-50	15-25
	65-96	Paragravelly silty clay, silty clay, silty clay loam	CL	A-7, A-6	0	0-5	95-100	90-100	85-100	80-95	40-45	15-20
Bohannon--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-10	Gravelly medial loam	GM	A-5	0	0-15	55-80	50-75	45-65	35-50	50-60	NP-5
	10-19	Gravelly loam	GC, SC, SC-SM	A-4	0	0-10	60-85	55-80	45-70	35-55	20-30	5-10
	19-27	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	27-34	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
135:												
Preacher--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-12	Medial loam	MH, SM, OH	A-5	0	0-5	80-90	75-85	60-80	45-65	50-60	NP-5
	12-18	Loam	CL-ML, CL	A-4	0	0-5	85-95	80-90	65-80	50-65	20-30	5-10
	18-29	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	29-44	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	44-53	Sandy loam, loam, clay loam	SC, SC-SM, CL	A-4, A-6	0	0-5	85-95	80-90	55-85	35-65	15-40	5-20
	53-63	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
135:												
Bohannon--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-10	Gravelly medial loam	GM	A-5	0	0-15	55-80	50-75	45-65	35-50	50-60	NP-5
	10-19	Gravelly loam	GC, SC, SC-SM	A-4	0	0-10	60-85	55-80	45-70	35-55	20-30	5-10
	19-27	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	27-34	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
136:												
Preacher--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-12	Medial loam	MH, SM, OH	A-5	0	0-5	80-90	75-85	60-80	45-65	50-60	NP-5
	12-18	Loam	CL-ML, CL	A-4	0	0-5	85-95	80-90	65-80	50-65	20-30	5-10
	18-29	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	29-44	Loam, clay loam	CL	A-6	0	0-5	85-95	80-90	75-90	55-70	25-40	10-20
	44-53	Sandy loam, loam, clay loam	SC, SC-SM, CL	A-4, A-6	0	0-5	85-95	80-90	55-85	35-65	15-40	5-20
	53-63	Weathered bedrock			---	---	---	---	---	---	---	---
Bohannon--------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-10	Gravelly medial loam	GM	A-5	0	0-15	55-80	50-75	45-65	35-50	50-60	NP-5
	10-19	Gravelly loam	GC, SC, SC-SM	A-4	0	0-10	60-85	55-80	45-70	35-55	20-30	5-10
	19-27	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	27-34	Gravelly loam, loam, cobbly clay loam	GC, CL, SC	A-4, A-6	0-10	0-25	60-95	55-90	50-85	40-70	25-35	5-15
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
Slickrock-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-11	Gravelly medial loam	GM	A-2, A-5	0	0-15	45-65	40-60	35-55	25-45	50-60	NP-5
	11-23	Gravelly medial loam	GM	A-2, A-5	0	0-15	50-70	45-65	35-55	25-45	50-60	NP-5
	23-36	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6	0	0-15	45-70	40-65	35-60	30-50	30-40	10-15
	36-48	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6	0	0-15	50-70	45-65	35-60	30-50	30-40	10-15
	48-60	Gravelly clay loam, gravelly loam, very gravelly clay loam	GC, SC	A-2, A-4, A-6	0	0-35	50-75	45-70	45-70	35-55	30-40	10-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
137:												
Price-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Silty clay loam	CL	A-6, A-7	0-5	0-10	90-100	75-90	70-90	65-85	35-45	15-20
	8-17	Clay, silty clay loam, gravelly silty clay, silty clay	CH, CL	A-7	0	0-15	65-90	60-85	55-85	50-80	40-55	15-30
	17-31	Clay, cobbly silty clay loam, gravelly silty clay, silty clay	CL, CH	A-7	0	0-30	65-90	60-85	55-85	50-80	40-55	15-30
	31-54	Cobbly silty clay loam, clay, gravelly silty clay, silty clay	CL, CH	A-7	0	0-30	65-90	60-85	55-85	50-80	40-55	15-30
	54-86	Cobbly clay, cobbly silty clay, gravelly silty clay loam	CL, CH	A-7	0	10-30	65-90	60-85	55-85	50-80	40-55	15-30
	86-90	Unweathered bedrock			---	---	---	---	---	---	---	---
MacDunn---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly silty clay loam	CL	A-6, A-7	0-5	10-15	65-75	60-75	55-75	50-70	35-45	15-20
	7-15	Gravelly silty clay loam, gravelly clay loam	CL, GC	A-6, A-7	0-5	10-15	65-75	60-75	55-75	45-70	35-45	15-20
	15-24	Very cobbly silty clay, extremely cobbly clay loam, very cobbly silty clay loam, very cobbly clay	GC	A-2, A-7	0-10	45-75	25-55	20-55	20-55	15-50	40-55	15-30
	24-38	Extremely cobbly clay loam, very cobbly silty clay, very cobbly silty clay loam, very cobbly clay	GC	A-2, A-7	0-10	45-75	25-55	20-55	20-55	15-50	40-55	15-30
	38-51	Extremely cobbly silty clay loam, extremely cobbly clay, extremely cobbly silty clay, very cobbly clay loam	GC	A-2, A-7	0-10	45-75	25-35	20-55	20-55	15-50	40-55	15-30
	51-61	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
137:												
Ritner----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly silty clay loam	CL	A-7, A-6	0	0-15	65-80	60-75	55-70	50-65	35-45	15-20
	6-16	Gravelly silty clay loam, cobbly silty clay loam, very cobbly silty clay loam	GC, CL	A-7, A-6	0	0-30	55-80	50-75	50-70	40-65	35-45	15-20
	16-25	Extremely cobbly silty clay, very cobbly clay, very cobbly silty clay, very cobbly silty clay loam	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	25-39	Very cobbly silty clay loam, very cobbly silty clay, extremely cobbly silty clay, extremely cobbly clay	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
138:												
Riverwash-------	0-60	Stratified sand to gravel			---	---	---	---	---	---	---	---
139:												
Salem-----------	0-9	Gravelly silt loam	CL-ML, GC-GM, SC-SM, GM, SM, ML	A-4	0	0-10	55-80	50-75	45-75	35-70	25-40	5-15
	9-18	Gravelly sandy clay loam, gravelly clay loam, gravelly silty clay loam	CL, SC, GM, ML, GC, SM	A-2, A-7, A-6	0	0-10	55-80	50-75	40-75	25-70	35-45	10-20
	18-30	Gravelly clay loam, gravelly sandy clay loam, very gravelly sandy clay loam, very gravelly clay loam	GC, GM, SC, SM	A-6, A-7, A-2	0	0-15	35-75	30-70	25-65	15-50	35-45	10-20
	30-60	Stratified extremely gravelly sand to very gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1	0	7-15	20-55	15-50	10-35	0-15	0-10	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
140:												
Santiam---------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	30-40	5-10
	6-13	Silt loam, silty clay loam	ML	A-4	0	0	95-100	90-100	80-100	70-95	30-40	5-10
	13-22	Silty clay, clay, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	80-100	75-95	35-50	10-25
	22-30	Silty clay loam, silty clay, clay	CL, ML	A-6, A-7	0	0	95-100	90-100	80-100	75-95	35-50	10-25
	30-60	Clay, silty clay, paragravelly silty clay, paragravelly clay	MH, ML, CL	A-7	0	0	95-100	90-100	85-100	80-95	45-60	15-30
141:												
Santiam---------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	30-40	5-10
	6-13	Silt loam, silty clay loam	ML	A-4	0	0	95-100	90-100	80-100	70-95	30-40	5-10
	13-22	Silty clay, clay, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	80-100	75-95	35-50	10-25
	22-30	Silty clay loam, silty clay, clay	CL, ML	A-6, A-7	0	0	95-100	90-100	80-100	75-95	35-50	10-25
	30-60	Clay, silty clay, paragravelly silty clay, paragravelly clay	MH, ML, CL	A-7	0	0	95-100	90-100	85-100	80-95	45-60	15-30
142:												
Sevencedars-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Gravelly medial loam	GM	A-5, A-2	0-30	15-65	40-65	35-60	30-50	20-40	50-60	NP-5
	8-17	Very gravelly medial loam	GM, GP-GM	A-5, A-2, A-1	0-30	15-65	30-60	25-55	20-50	10-40	50-60	NP-5
	17-30	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-5, A-1	0-30	15-75	20-60	15-55	10-55	10-45	50-60	NP-5
	30-48	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM	A-1, A-5	0-25	15-70	20-65	15-60	15-55	15-45	50-60	NP-5
	48-65	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM	A-1, A-5	0-25	15-65	20-65	15-60	15-55	15-45	50-60	NP-5

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
142:												
Newanna---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-13	Very cobbly medial loam	GM	A-5, A-1	0	45-65	30-60	25-55	25-50	20-40	50-60	NP-5
	13-22	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-5, A-1	0-25	25-65	15-55	10-50	10-45	10-40	50-60	NP-5
	22-33	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-5	0-25	25-60	20-55	15-50	10-45	10-40	50-60	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
143:												
Sevencedars-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Gravelly medial loam	GM	A-5, A-2	0-30	15-65	40-65	35-60	30-50	20-40	50-60	NP-5
	8-17	Very gravelly medial loam	GM, GP-GM	A-5, A-2, A-1	0-30	15-65	30-60	25-55	20-50	10-40	50-60	NP-5
	17-30	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-5, A-1	0-30	15-75	20-60	15-55	10-55	10-45	50-60	NP-5
	30-48	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM	A-1, A-5	0-25	15-70	20-65	15-60	15-55	15-45	50-60	NP-5
	48-65	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM	A-1, A-5	0-25	15-65	20-65	15-60	15-55	15-45	50-60	NP-5
Newanna---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-13	Very cobbly medial loam	GM	A-5, A-1	0	45-65	30-60	25-55	25-50	20-40	50-60	NP-5
	13-22	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-5, A-1	0-25	25-65	15-55	10-50	10-45	10-40	50-60	NP-5
	22-33	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-5	0-25	25-60	20-55	15-50	10-45	10-40	50-60	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
143:												
Woodspoint------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Medial loam	MH, SM, OH	A-5	0	0-30	75-100	70-100	60-95	40-75	50-60	NP-5
	5-16	Gravelly medial loam	MH, SM	A-5	0	0-30	75-100	70-100	60-95	40-75	50-60	NP-5
	16-27	Gravelly medial loam, medial loam, paragravelly medial loam	MH, GM, SM	A-5, A-2	0-25	15-55	45-90	40-85	40-85	30-70	50-60	NP-5
	27-46	Gravelly medial loam, medial loam	MH, GM, SM	A-2, A-5	0-25	15-55	45-90	40-85	40-85	30-70	50-60	NP-5
	46-50	Unweathered bedrock			---	---	---	---	---	---	---	---
144:												
Sevencedars-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Gravelly medial loam	GM	A-5, A-2	0-30	15-65	40-65	35-60	30-50	20-40	50-60	NP-5
	8-17	Very gravelly medial loam	GM, GP-GM	A-5, A-2, A-1	0-30	15-65	30-60	25-55	20-50	10-40	50-60	NP-5
	17-30	Very gravelly medial loam, extremely cobbly medial loam, very cobbly medial loam	GM, GP-GM	A-5, A-1	0-30	15-75	20-60	15-55	10-55	10-45	50-60	NP-5
	30-48	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM	A-1, A-5	0-25	15-70	20-65	15-60	15-55	15-45	50-60	NP-5
	48-65	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM	A-1, A-5	0-25	15-65	20-65	15-60	15-55	15-45	50-60	NP-5
Newanna---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-13	Very cobbly medial loam	GM	A-5, A-1	0	45-65	30-60	25-55	25-50	20-40	50-60	NP-5
	13-22	Extremely cobbly medial loam, very cobbly medial loam, very gravelly medial loam	GM, GP-GM	A-5, A-1	0-25	25-65	15-55	10-50	10-45	10-40	50-60	NP-5
	22-33	Very gravelly medial loam, very cobbly medial loam, extremely cobbly medial loam	GM, GP-GM	A-1, A-5	0-25	25-60	20-55	15-50	10-45	10-40	50-60	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
144:												
Woodspoint------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Medial loam	MH, SM, OH	A-5	0	0-30	75-100	70-100	60-95	40-75	50-60	NP-5
	5-16	Gravelly medial loam	MH, SM	A-5	0	0-30	75-100	70-100	60-95	40-75	50-60	NP-5
	16-27	Gravelly medial loam, medial loam, paragravelly medial loam	MH, GM, SM	A-5, A-2	0-25	15-55	45-90	40-85	40-85	30-70	50-60	NP-5
	27-46	Gravelly medial loam, medial loam	MH, GM, SM	A-2, A-5	0-25	15-55	45-90	40-85	40-85	30-70	50-60	NP-5
	46-50	Unweathered bedrock			---	---	---	---	---	---	---	---
145:												
Shivigny--------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Very gravelly clay loam	GC	A-2	0	0-20	30-55	25-50	15-45	15-40	30-40	10-15
	7-13	Very gravelly clay loam, extremely gravelly silty clay	GC	A-2, A-7	0	0-20	20-55	15-50	10-45	10-45	35-50	15-25
	13-23	Extremely gravelly silty clay, very cobbly silty clay, extremely cobbly silty clay	GC, GM	A-2, A-7	0-20	20-60	20-55	15-50	10-45	10-45	45-55	20-25
	23-34	Extremely gravelly silty clay, extremely cobbly silty clay, very cobbly silty clay	GC, GM	A-7, A-2	0-20	20-55	20-60	15-55	15-45	15-45	45-55	20-25
	34-43	Extremely cobbly silty clay, extremely gravelly silty clay, very cobbly silty clay	GC, GM	A-2, A-7	0-20	20-50	20-60	15-55	15-55	15-50	45-55	20-25
	43-68	Extremely cobbly silty clay, extremely gravelly silty clay, very cobbly silty clay	GC, GM	A-2, A-7	0-20	20-50	20-60	15-55	15-55	15-50	45-55	20-25
	68-78	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
145:												
Honeygrove, basalt bedrock	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silty clay loam	CL	A-6	0	0	85-100	80-100	80-100	70-95	30-40	10-15
	9-15	Paragravelly silty clay loam, silty clay loam, silty clay	CL	A-7	0	0	85-100	80-100	80-100	70-95	40-50	15-25
	15-22	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	22-37	Clay, silty clay, paragravelly silty clay	CH, MH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	37-50	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
	50-67	Clay, silty clay, paragravelly silty clay	MH, CH	A-7	0	0	85-100	80-100	75-100	65-95	45-60	20-30
146:												
Slickrock-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-11	Gravelly medial loam	GM	A-2, A-5	0	0-15	45-65	40-60	35-55	25-45	50-60	NP-5
	11-23	Gravelly medial loam	GM	A-2, A-5	0	0-15	50-70	45-65	35-55	25-45	50-60	NP-5
	23-36	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6	0	0-15	45-70	40-65	35-60	30-50	30-40	10-15
	36-48	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6	0	0-15	50-70	45-65	35-60	30-50	30-40	10-15
	48-60	Gravelly clay loam, gravelly loam, very gravelly clay loam	GC, SC	A-2, A-4, A-6	0	0-35	50-75	45-70	45-70	35-55	30-40	10-15
147:												
Steiwer---------	0-7	Silt loam	ML, CL-ML	A-4	0	0	95-100	90-100	80-100	70-90	25-35	5-10
	7-15	Clay loam, loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	80-100	65-90	30-40	10-20
	15-19	Clay loam, silty clay loam, paragravelly clay loam, paragravelly silty clay loam	CL	A-6	0	0	90-100	85-100	80-95	60-85	30-40	10-20
	19-26	Clay loam, paragravelly clay loam, paragravelly silty clay loam, silty clay loam	CL	A-6	0	0	90-100	85-100	80-95	60-85	30-40	10-20
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
147:												
Chehulpum-------	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	70-90	25-35	NP-10
	4-12	Silty clay loam, paragravelly silt loam, silt loam, clay loam, gravelly loam	ML, SM	A-4, A-6	0	0-10	75-100	65-100	55-100	40-95	30-40	5-15
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---
148:												
Steiwer---------	0-7	Silt loam	ML, CL-ML	A-4	0	0	95-100	90-100	80-100	70-90	25-35	5-10
	7-15	Clay loam, loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	80-100	65-90	30-40	10-20
	15-19	Clay loam, silty clay loam, paragravelly clay loam, paragravelly silty clay loam	CL	A-6	0	0	90-100	85-100	80-95	60-85	30-40	10-20
	19-26	Clay loam, paragravelly clay loam, paragravelly silty clay loam, silty clay loam	CL	A-6	0	0	90-100	85-100	80-95	60-85	30-40	10-20
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---
Chehulpum-------	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	70-90	25-35	NP-10
	4-12	Gravelly loam, silty clay loam, paragravelly silt loam, silt loam, clay loam	SM, ML	A-4, A-6	0	0-10	75-100	65-100	55-100	40-95	30-40	5-15
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---
149:												
Steiwer---------	0-7	Silt loam	ML, CL-ML	A-4	0	0	95-100	90-100	80-100	70-90	25-35	5-10
	7-15	Clay loam, loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	80-100	65-90	30-40	10-20
	15-19	Clay loam, silty clay loam, paragravelly clay loam, paragravelly silty clay loam	CL	A-6	0	0	90-100	85-100	80-95	60-85	30-40	10-20
	19-26	Clay loam, paragravelly clay loam, paragravelly silty clay loam, silty clay loam	CL	A-6	0	0	90-100	85-100	80-95	60-85	30-40	10-20
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
149:												
Chehulpum-------	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	70-90	25-35	NP-10
	4-12	Gravelly loam, silty clay loam, paragravelly silt loam, silt loam, clay loam	SM, ML	A-4, A-6	0	0-10	75-100	65-100	55-100	40-95	30-40	5-15
	12-22	Weathered bedrock			---	---	---	---	---	---	---	---
150:												
Treharne--------	0-6	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-25	5-10
	6-14	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-25	5-10
	14-21	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-100	25-40	5-15
	21-32	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-100	25-40	5-15
	32-68	Silt loam, silty clay loam, silty clay	CL	A-4, A-6	0	0	100	100	90-100	70-100	25-45	10-20
Eilertsen-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-100	20-25	5-10
	9-18	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-100	20-25	5-10
	18-29	Silt loam, silty clay loam, loam	CL	A-4, A-6	0	0	100	100	85-100	65-100	25-40	10-20
	29-45	Silt loam, silty clay loam, loam	CL	A-4, A-6	0	0	100	100	85-100	65-100	25-40	10-20
	45-54	Silt loam, fine sandy loam, loam	CL, CL-ML	A-4	0	0	100	100	80-100	60-100	15-30	5-15
	54-72	Silt loam, loam, fine sandy loam	CL-ML, CL	A-4	0	0	100	100	80-100	60-100	15-30	5-15
Zyzzug----------	0-12	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-100	25-30	5-10
	12-36	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-100	30-40	10-15
	36-42	Clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-15
	42-63	Silt loam, silty clay loam, clay loam	CL	A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
151:												
Valsetz---------	0-3	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-11	Very stony medial loam	GM	A-5, A-1	45-70	15-55	25-50	20-45	20-45	15-40	50-60	NP-5
	11-21	Extremely cobbly medial sandy loam, very cobbly medial sandy loam, very cobbly medial loam	GP-GM, GM	A-1, A-5	0-40	60-80	15-60	10-55	10-50	5-40	50-60	NP-5
	21-30	Very cobbly medial sandy loam, extremely cobbly medial sandy loam, very cobbly medial loam	GP-GM, GM	A-1, A-5	0-40	55-75	15-60	10-55	10-50	5-40	50-60	NP-5
	30-35	Very cobbly medial sandy loam, extremely cobbly medial sandy loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0-35	55-70	15-60	10-55	10-50	5-40	50-60	NP-5
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Yellowstone-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very stony medial loam	GM, SM	A-5, A-2	45-65	30-55	40-70	35-65	35-55	25-45	50-60	NP-5
	4-9	Extremely stony medial loam, very stony medial loam, very cobbly medial sandy loam	GM, SM	A-2, A-5	40-90	60-80	35-80	30-75	25-70	20-55	50-60	NP-5
	9-18	Very stony medial loam, very cobbly medial sandy loam, extremely stony medial loam	GM, SM	A-2, A-5	40-85	55-75	35-85	30-80	25-70	20-55	50-60	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
152:												
Valsetz---------	0-3	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-11	Very stony medial loam	GM	A-5, A-1	45-70	15-55	25-50	20-45	20-45	15-40	50-60	NP-5
	11-21	Extremely cobbly medial sandy loam, very cobbly medial sandy loam, very cobbly medial loam	GP-GM, GM	A-1, A-5	0-40	60-80	15-60	10-55	10-50	5-40	50-60	NP-5
	21-30	Very cobbly medial sandy loam, extremely cobbly medial sandy loam, very cobbly medial loam	GP-GM, GM	A-1, A-5	0-40	55-75	15-60	10-55	10-50	5-40	50-60	NP-5
	30-35	Very cobbly medial sandy loam, extremely cobbly medial sandy loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0-35	55-70	15-60	10-55	10-50	5-40	50-60	NP-5
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Yellowstone-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very stony medial loam	GM, SM	A-5, A-2	45-65	30-55	40-70	35-65	35-55	25-45	50-60	NP-5
	4-9	Extremely stony medial loam, very stony medial loam, very cobbly medial sandy loam	GM, SM	A-2, A-5	40-90	60-80	35-80	30-75	25-70	20-55	50-60	NP-5
	9-18	Very stony medial loam, very cobbly medial sandy loam, extremely stony medial loam	GM, SM	A-2, A-5	40-85	55-75	35-85	30-80	25-70	20-55	50-60	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
153:												
Valsetz	0-3	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-11	Very stony medial loam	GM	A-5, A-1	45-70	15-55	25-50	20-45	20-45	15-40	50-60	NP-5
	11-21	Extremely cobbly medial sandy loam, very cobbly medial sandy loam, very cobbly medial loam	GP-GM, GM	A-1, A-5	0-40	60-80	15-60	10-55	10-50	5-40	50-60	NP-5
	21-30	Very cobbly medial sandy loam, extremely cobbly medial sandy loam, very cobbly medial loam	GP-GM, GM	A-1, A-5	0-40	55-75	15-60	10-55	10-50	5-40	50-60	NP-5
	30-35	Very cobbly medial sandy loam, extremely cobbly medial sandy loam, very cobbly medial loam	GM, GP-GM	A-1, A-2	0-35	55-70	15-60	10-55	10-50	5-40	50-60	NP-5
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Yellowstone	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Very stony medial loam	GM, SM	A-5, A-2	45-65	30-55	40-70	35-65	35-55	25-45	50-60	NP-5
	4-9	Extremely stony medial loam, very stony medial loam, very cobbly medial sandy loam	GM, SM	A-2, A-5	40-90	60-80	35-80	30-75	25-70	20-55	50-60	NP-5
	9-18	Very stony medial loam, very cobbly medial sandy loam, extremely stony medial loam	GM, SM	A-2, A-5	40-85	55-75	35-85	30-80	25-70	20-55	50-60	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
154:												
Verboort	0-8	Silty clay loam	ML	A-7, A-6	0	0	100	100	95-100	90-95	35-45	10-15
	8-12	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	90-95	35-45	10-15
	12-19	Silt loam, silty clay loam	ML	A-7, A-6	0	0	100	100	90-100	90-95	35-45	10-15
	19-28	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	28-33	Silty clay, clay	CH	A-7	0	0	100	100	95-100	90-100	55-70	35-45
	33-60	Silt loam, silty clay loam	ML	A-6, A-7, A-4	0	0	100	100	95-100	80-100	30-45	5-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
155:												
Waldo-----------	0-2	Silty clay loam	CL, ML	A-6	0	0-5	90-100	85-100	80-100	75-95	30-40	10-20
	2-7	Silty clay loam	CL, ML	A-6	0	0-5	90-100	85-100	80-100	75-95	30-40	10-20
	7-10	Silty clay loam	CL, ML	A-6	0	0-5	90-100	85-100	80-100	75-95	30-40	10-20
	10-15	Silty clay, clay, silty clay loam	CH, MH, CL	A-7	0	0	95-100	95-100	90-100	85-95	40-60	15-30
	15-23	Silty clay, clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
	23-37	Silty clay, clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
	37-46	Clay, silty clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
	46-60	Silty clay, clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
156:												
Waldo, high precipitation--	0-2	Silty clay loam	CL, ML	A-6, A-4	0	0-5	90-100	85-100	80-100	75-95	30-40	10-20
	2-7	Silty clay loam	CL, ML	A-6, A-4	0	0-5	90-100	85-100	80-100	75-95	30-40	10-20
	7-10	Silty clay loam	CL, ML	A-6, A-4	0	0-5	90-100	85-100	80-100	75-95	30-40	10-20
	10-15	Silty clay, clay, silty clay loam	CH, MH, CL	A-7	0	0	95-100	95-100	90-100	85-95	40-60	15-30
	15-23	Silty clay, clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
	23-37	Silty clay, clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
	37-46	Clay, silty clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
	46-60	Silty clay, clay	CH, MH	A-7	0	0	95-100	95-100	90-100	85-95	50-60	20-30
157:												
Wapato----------	0-9	Silty clay loam	ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	10-15
	9-16	Silty clay loam	CL, ML	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-50	10-20
	16-22	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	85-100	75-95	35-50	10-20
	22-32	Silty clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	85-100	75-95	35-50	10-20
	32-60	Silty clay loam, silty clay	MH, ML, CL	A-7	0	0	80-100	75-100	70-100	65-100	40-55	15-25
158:												
Wapato, high precipitation--	0-9	Silty clay loam	ML	A-7, A-6, A-4	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam	ML, CL	A-7, A-6, A-4	0	0	100	100	95-100	85-95	35-45	10-15
	16-22	Silty clay loam	ML, CL	A-6, A-7, A-4	0	0	100	100	95-100	85-95	35-45	10-15
	22-32	Silty clay loam	ML, CL	A-6, A-7, A-4	0	0	100	100	95-100	85-95	35-45	10-15
	32-60	Silty clay, silty clay loam	MH, ML, CL	A-7	0	0	100	100	95-100	90-95	40-55	15-25
159:												
Water-----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
160:												
Wellsdale-------	0-2	Loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	2-8	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	8-24	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	24-34	Loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	34-57	Paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	57-65	Very paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	95-100	60-80	30-40	10-20
Willakenzie-----	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Clay loam, paragravelly loam, paragravelly clay loam, loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
161:												
Wellsdale-------	0-2	Loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	2-8	Loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	8-24	Clay loam, loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	24-34	Loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	34-57	Paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	57-65	Very paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	95-100	60-80	30-40	10-20
Willakenzie-----	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
161:												
Dupee-----------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
162:												
Wellsdale, north slopes---------	0-2	Loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	2-8	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	8-24	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	24-34	Loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	34-57	Paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	57-65	Very paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	95-100	60-80	30-40	10-20
Willakenzie, north slopes---	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
162: Dupee, north slopes	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	4-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-35	5-15
	9-17	Silt loam, clay loam, silty clay loam	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	70-95	30-45	10-15
	17-24	Clay loam, silty clay loam	ML, CL	A-7, A-6	0	0	95-100	90-100	85-100	70-95	30-50	10-20
	24-34	Paragravelly silty clay, silty clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	34-42	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7	0	0	95-100	90-100	80-100	65-95	40-55	15-25
	42-51	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	MH, CL, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
	51-62	Paragravelly silty clay loam, very paragravelly clay loam, clay, silty clay	CL, MH, ML	A-7, A-6	0	0	95-100	90-100	80-100	65-95	35-55	15-25
163: Willakenzie	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
164: Willakenzie	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
165:												
Willakenzie-----	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
166:												
Willakenzie-----	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
167:												
Willakenzie, south slopes---	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
Wellsdale, south slopes---------	0-2	Loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	2-8	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	8-24	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	24-34	Loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	34-57	Paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	57-65	Very paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	95-100	60-80	30-40	10-20

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
168:												
Willakenzie-----	0-5	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	5-11	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-15
	11-19	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	19-32	Paragravelly loam, paragravelly clay loam, loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	32-42	Weathered bedrock			---	---	---	---	---	---	---	---
Wellsdale-------	0-2	Loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	2-8	Loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	55-75	25-35	5-10
	8-24	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	24-34	Loam, clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	34-57	Paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	90-100	60-80	30-40	10-20
	57-65	Very paragravelly loam, paragravelly clay loam, clay loam, loam	CL	A-6	0	0	100	100	95-100	60-80	30-40	10-20
169:												
Willamette------	0-6	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	6-13	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	13-24	Silt loam	CL, ML	A-6, A-4	0	0	100	95-100	95-100	85-100	30-40	5-15
	24-33	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	33-45	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	45-53	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	53-60	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
170:												
Willamette------	0-6	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	6-13	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	13-24	Silt loam	CL, ML	A-6, A-4	0	0	100	95-100	95-100	85-100	30-40	5-15
	24-33	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	33-45	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	45-53	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	53-60	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
171:												
Willamette------	0-6	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	6-13	Silt loam	ML, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	13-24	Silt loam	CL, ML	A-6, A-4	0	0	100	95-100	95-100	85-100	30-40	5-15
	24-33	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	33-45	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	45-53	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	53-60	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
172:												
Witham----------	0-4	Silty clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-100	45-55	25-35
	4-12	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	12-21	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	21-29	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	29-60	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	60-80	40-60
173:												
Witham----------	0-4	Silty clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-100	45-55	25-35
	4-12	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	12-21	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	21-29	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-100	60-80	40-60
	29-60	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	80-95	60-80	40-60

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
174:												
Witzel----------	0-4	Very cobbly loam	GM, CL	A-2, A-4, A-6	0-15	30-55	45-80	35-70	30-65	25-55	25-35	5-15
	4-11	Extremely cobbly clay loam, very cobbly clay loam, very cobbly loam, extremely stony silty clay loam	GM, CL	A-4, A-2, A-6	0-50	40-60	40-80	30-70	25-70	20-65	35-45	15-20
	11-17	Very cobbly clay loam, extremely cobbly loam, extremely cobbly clay loam, extremely stony silty clay loam	GM, CL	A-2, A-4, A-6	0-50	40-60	40-80	30-70	25-70	20-65	35-45	15-20
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Ritner----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly silty clay loam	CL	A-7, A-6	0	0-15	65-80	60-75	55-70	50-65	35-45	15-20
	6-16	Gravelly silty clay loam, cobbly silty clay loam, very cobbly silty clay loam	GC, CL	A-7, A-6	0	0-30	55-80	50-75	50-70	40-65	35-45	15-20
	16-25	Extremely cobbly silty clay, very cobbly clay, very cobbly silty clay, very cobbly silty clay loam	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	25-39	Very cobbly silty clay loam, very cobbly silty clay, extremely cobbly silty clay, extremely cobbly clay	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
175:												
Witzel----------	0-4	Very cobbly loam	GM, CL	A-2, A-4, A-6	0-15	30-55	45-80	35-70	30-65	25-55	25-35	5-15
	4-11	Extremely cobbly clay loam, very cobbly clay loam, very cobbly loam, extremely stony silty clay loam	GM, CL	A-4, A-2, A-6	0-50	40-60	40-80	30-70	25-70	20-65	35-45	15-20
	11-17	Very cobbly clay loam, extremely cobbly loam, extremely cobbly clay loam, extremely stony silty clay loam	GM, CL	A-2, A-4, A-6	0-50	40-60	40-80	30-70	25-70	20-65	35-45	15-20
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
175:												
Ritner----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly silty clay loam	CL	A-7, A-6	0	0-15	65-80	60-75	55-70	50-65	35-45	15-20
	6-16	Gravelly silty clay loam, cobbly silty clay loam, very cobbly silty clay loam	GC, CL	A-7, A-6	0	0-30	55-80	50-75	50-70	40-65	35-45	15-20
	16-25	Extremely cobbly silty clay, very cobbly clay, very cobbly silty clay, very cobbly silty clay loam	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	25-39	Very cobbly silty clay loam, very cobbly silty clay, extremely cobbly silty clay, extremely cobbly clay	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
176:												
Witzel----------	0-4	Very cobbly loam	GM, CL	A-2, A-4, A-6	0-15	30-55	45-80	35-70	30-65	25-55	25-35	5-15
	4-11	Extremely cobbly clay loam, very cobbly clay loam, very cobbly loam, extremely stony silty clay loam	GM, CL	A-4, A-2, A-6	0-50	40-60	40-80	30-70	25-70	20-65	35-45	15-20
	11-17	Very cobbly clay loam, extremely cobbly loam, extremely cobbly clay loam, extremely stony silty clay loam	GM, CL	A-2, A-4, A-6	0-50	40-60	40-80	30-70	25-70	20-65	35-45	15-20
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
176:												
Ritner----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly silty clay loam	CL	A-7, A-6	0	0-15	65-80	60-75	55-70	50-65	35-45	15-20
	6-16	Gravelly silty clay loam, cobbly silty clay loam, very cobbly silty clay loam	GC, CL	A-7, A-6	0	0-30	55-80	50-75	50-70	40-65	35-45	15-20
	16-25	Extremely cobbly silty clay, very cobbly clay, very cobbly silty clay, very cobbly silty clay loam	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	25-39	Very cobbly silty clay loam, very cobbly silty clay, extremely cobbly silty clay, extremely cobbly clay	GC, CL	A-2, A-7	0-5	25-50	40-70	35-65	30-60	30-55	40-55	15-30
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
177:												
Woodburn--------	0-9	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	9-17	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	17-25	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	25-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	32-39	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	39-54	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	54-68	Silty clay loam, silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	80-100	25-40	5-15
	68-80	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10
	80-92	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
178:												
Woodburn--------	0-9	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	9-17	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	17-25	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	25-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	32-39	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	39-54	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	54-68	Silty clay loam, silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	80-100	25-40	5-15
	68-80	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10
	80-92	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10
179:												
Woodburn--------	0-9	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	9-17	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	17-25	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	25-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	32-39	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	39-54	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	54-68	Silty clay loam, silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	80-100	25-40	5-15
	68-80	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10
	80-92	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10

Table 22.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
180:												
Woodburn--------	0-9	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	9-17	Silt loam	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	5-15
	17-25	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	25-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	32-39	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	39-54	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
	54-68	Silty clay loam, silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	80-100	25-40	5-15
	68-80	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10
	80-92	Stratified fine sandy loam to silt loam	ML, SM	A-4	0	0	100	100	70-100	40-90	20-35	NP-10

Table 23.--Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
1:														
Abiqua---------------	0-6	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.24	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	6-15	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.16-0.23	3.0-5.9	1.5-4.5	.15	.20			
	15-25	10-20	40-60	30-40	1.20-1.40	4.00-14.00	0.16-0.22	3.0-5.9	1.0-3.0	.24	.28			
	25-36	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.23	6.0-8.9	0.5-3.0	.15	.20			
	36-44	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.21	6.0-8.9	0.3-2.0	.20	.28			
	44-60	10-25	25-55	35-50	1.30-1.50	1.40-4.00	0.07-0.20	6.0-8.9	0.1-1.0	.10	.32			
2:														
Abiqua---------------	0-6	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.24	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	6-15	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.16-0.23	3.0-5.9	1.5-4.5	.15	.20			
	15-25	10-20	40-60	30-40	1.20-1.40	4.00-14.00	0.16-0.22	3.0-5.9	1.0-3.0	.24	.28			
	25-36	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.23	6.0-8.9	0.5-3.0	.15	.20			
	36-44	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.21	6.0-8.9	0.3-2.0	.20	.28			
	44-60	10-25	25-55	35-50	1.30-1.50	1.40-4.00	0.07-0.20	6.0-8.9	0.1-1.0	.10	.32			
3:														
Abiqua, high precipitation-------	0-6	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.24	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	6-15	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.16-0.23	3.0-5.9	1.5-4.5	.15	.20			
	15-25	10-20	40-60	30-40	1.20-1.40	4.00-14.00	0.16-0.22	3.0-5.9	1.0-3.0	.24	.28			
	25-36	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.23	6.0-8.9	0.5-3.0	.15	.20			
	36-44	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.21	6.0-8.9	0.3-2.0	.20	.28			
	44-60	10-25	25-55	35-50	1.30-1.50	1.40-4.00	0.07-0.20	6.0-8.9	0.1-1.0	.10	.32			
4:														
Abiqua, high precipitation-------	0-6	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.24	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	6-15	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.16-0.23	3.0-5.9	1.5-4.5	.15	.20			
	15-25	10-20	40-60	30-40	1.20-1.40	4.00-14.00	0.16-0.22	3.0-5.9	1.0-3.0	.24	.28			
	25-36	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.23	6.0-8.9	0.5-3.0	.15	.20			
	36-44	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.21	6.0-8.9	0.3-2.0	.20	.28			
	44-60	10-25	25-55	35-50	1.30-1.50	1.40-4.00	0.07-0.20	6.0-8.9	0.1-1.0	.10	.32			
5:														
Abiqua, rarely flooded-------------	0-6	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.24	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	6-15	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.16-0.23	3.0-5.9	1.5-4.5	.15	.20			
	15-25	10-20	40-60	30-40	1.20-1.40	4.00-14.00	0.16-0.22	3.0-5.9	1.0-3.0	.24	.28			
	25-36	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.23	6.0-8.9	0.5-3.0	.15	.20			
	36-44	10-20	30-55	35-50	1.30-1.50	1.40-4.00	0.12-0.21	6.0-8.9	0.3-2.0	.20	.28			
	44-60	10-25	25-55	35-50	1.30-1.50	1.40-4.00	0.07-0.20	6.0-8.9	0.1-1.0	.10	.32			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
6:														
Alsea----------------	0-8	---	---	18-27	1.00-1.20	4.00-14.00	0.16-0.18	3.0-5.9	4.0-9.0	.32	.32	5	6	48
	8-12	---	---	18-27	1.00-1.20	4.00-14.00	0.16-0.18	3.0-5.9	4.0-8.0	.32	.32			
	12-16	---	---	20-30	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	3.0-6.0	.32	.32			
	16-25	---	---	20-30	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	3.0-6.0	.32	.32			
	25-34	---	---	20-30	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	2.0-4.0	.37	.37			
	34-52	---	---	15-35	1.00-1.20	4.00-14.00	0.16-0.18	3.0-5.9	1.0-3.0	.49	.55			
	52-67	---	---	10-25	1.20-1.40	14.00-42.00	0.10-0.12	1.0-2.9	0.5-2.0	.49	.64			
7:														
Alsea, rarely flooded	0-8	---	---	18-27	1.00-1.20	4.00-14.00	0.16-0.18	3.0-5.9	4.0-9.0	.32	.32	5	6	48
	8-12	---	---	18-27	1.00-1.20	4.00-14.00	0.16-0.18	3.0-5.9	4.0-8.0	.32	.32			
	12-16	---	---	20-30	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	3.0-6.0	.32	.32			
	16-25	---	---	20-30	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	3.0-6.0	.32	.32			
	25-34	---	---	20-30	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	2.0-4.0	.37	.37			
	34-52	---	---	15-35	1.00-1.20	4.00-14.00	0.16-0.18	3.0-5.9	1.0-3.0	.49	.55			
	52-67	---	---	10-25	1.20-1.40	14.00-42.00	0.10-0.12	1.0-2.9	0.5-2.0	.49	.64			
8:														
Amity----------------	0-7	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.28	.28	5	6	48
	7-16	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	16-22	2-10	60-80	20-30	1.40-1.50	4.00-14.00	0.18-0.22	0.5-2.9	0.8-2.5	.49	.49			
	22-28	2-15	55-70	27-35	1.30-1.55	1.40-4.00	0.19-0.21	1.0-5.9	0.3-1.0	.55	.55			
	28-35	2-15	55-70	27-35	1.30-1.55	1.40-4.00	0.19-0.21	1.0-5.9	0.2-0.6	.55	.55			
	35-72	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
9:														
Apt------------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-6	---	---	27-35	1.00-1.20	4.00-14.00	0.18-0.21	3.0-5.9	5.0-10	.17	.17			
	6-11	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	3.0-5.9	3.0-7.0	.24	.24			
	11-18	---	---	45-60	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.20	.20			
	18-27	---	---	45-60	1.10-1.30	1.40-4.00	0.13-0.17	3.0-5.9	0.5-3.0	.24	.24			
	27-37	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.24	.24			
	37-51	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.24	.24			
	51-66	---	---	30-45	1.20-1.40	1.40-4.00	0.17-0.21	3.0-5.9	0.0-0.5	.32	.32			
McDuff---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-9	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	5.0-10	.28	.28			
	9-17	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	3.0-7.0	.24	.24			
	17-23	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	1.0-4.0	.24	.24			
	23-30	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	0.0-3.0	.24	.24			
	30-37	---	---	40-60	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	0.0-1.0	.28	.28			
	37-47	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
10:														
Apt	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-6	---	---	27-35	1.00-1.20	4.00-14.00	0.18-0.21	3.0-5.9	5.0-10	.17	.17			
	6-11	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	3.0-5.9	3.0-7.0	.24	.24			
	11-18	---	---	45-60	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.20	.20			
	18-27	---	---	45-60	1.10-1.30	1.40-4.00	0.13-0.17	3.0-5.9	0.5-3.0	.24	.24			
	27-37	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.24	.24			
	37-51	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.24	.24			
	51-66	---	---	30-45	1.20-1.40	1.40-4.00	0.17-0.21	3.0-5.9	0.0-0.5	.32	.32			
McDuff	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-9	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	5.0-10	.28	.28			
	9-17	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	3.0-7.0	.24	.24			
	17-23	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	1.0-4.0	.24	.24			
	23-30	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	0.0-3.0	.24	.24			
	30-37	---	---	40-60	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	0.0-1.0	.28	.28			
	37-47	---	---	---	---	---	---	---	---	---	---			
11:														
Aquents	0-10	5-20	55-75	20-27	1.15-1.50	4.00-14.00	0.19-0.23	0.0-2.9	3.0-5.5	.28	.32	5	6	48
	10-40	5-20	30-70	25-50	1.10-1.50	0.42-14.00	0.13-0.23	0.0-8.9	0.2-5.0	.43	.49			
	40-60	5-20	20-60	30-70	1.10-1.50	0.01-4.00	0.13-0.21	3.0-15.0	0.1-1.0	.37	.43			
12:														
Awbrig	0-2	5-20	50-65	27-30	1.10-1.30	4.00-14.00	0.20-0.24	3.0-5.9	3.0-5.0	.24	.28	3	6	48
	2-7	5-20	50-65	27-30	1.10-1.30	4.00-14.00	0.19-0.23	3.0-5.9	2.0-4.0	.28	.32			
	7-18	2-15	30-45	50-60	1.30-1.40	0.01-0.42	0.13-0.18	9.0-13.0	1.0-2.0	.24	.24			
	18-29	2-15	30-45	50-60	1.30-1.40	0.01-0.42	0.13-0.17	9.0-11.9	0.4-1.0	.24	.28			
	29-48	2-20	40-65	27-40	1.30-1.40	1.40-4.00	0.18-0.21	3.0-8.9	0.3-0.7	.37	.43			
	48-60	10-25	40-65	27-40	1.30-1.40	1.40-4.00	0.18-0.21	3.0-8.9	0.2-0.6	.37	.43			
13:														
Bashaw, nonflooded	0-3	1-15	15-40	40-70	1.10-1.30	0.01-0.42	0.16-0.21	7.5-12.0	5.0-10	.15	.15	5	4	86
	3-14	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.15-0.19	10.0-18.0	2.0-5.5	.20	.20			
	14-31	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	1.5-2.5	.24	.24			
	31-48	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	0.5-2.0	.24	.24			
	48-60	5-46	10-50	45-70	1.10-1.30	0.01-0.42	0.13-0.17	8.0-18.0	0.2-1.0	.24	.28			
14:														
Bashaw, flooded	0-3	1-15	15-40	40-70	1.10-1.30	0.01-0.42	0.16-0.21	7.5-12.0	5.0-10	.15	.15	5	4	86
	3-14	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.15-0.19	10.0-18.0	2.0-5.5	.20	.20			
	14-31	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	1.5-2.5	.24	.24			
	31-48	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	0.5-2.0	.24	.24			
	48-60	5-46	10-50	45-70	1.10-1.30	0.01-0.42	0.13-0.17	8.0-18.0	0.2-1.0	.24	.28			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
15:														
Bashaw, nonflooded---	0-3	1-15	15-40	40-70	1.10-1.30	0.01-0.42	0.16-0.21	7.5-12.0	5.0-10	.15	.15	5	4	86
	3-14	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.15-0.19	10.0-18.0	2.0-5.5	.20	.20			
	14-31	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	1.5-2.5	.24	.24			
	31-48	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	0.5-2.0	.24	.24			
	48-60	5-46	10-50	45-70	1.10-1.30	0.01-0.42	0.13-0.17	8.0-18.0	0.2-1.0	.24	.28			
16:														
Bashaw, nonflooded---	0-3	1-15	15-40	40-70	1.10-1.30	0.01-0.42	0.16-0.21	7.5-12.0	5.0-10	.15	.15	5	4	86
	3-14	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.15-0.19	10.0-18.0	2.0-5.5	.20	.20			
	14-31	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	1.5-2.5	.24	.24			
	31-48	1-10	20-40	55-70	1.10-1.30	0.01-0.42	0.14-0.17	10.0-18.0	0.5-2.0	.24	.24			
	48-60	5-46	10-50	45-70	1.10-1.30	0.01-0.42	0.13-0.17	8.0-18.0	0.2-1.0	.24	.28			
17:														
Bellpine-------------	0-6	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	3	6	48
	6-10	5-15	40-60	35-45	1.20-1.30	1.40-14.00	0.16-0.24	2.0-4.0	1.5-5.5	.15	.15			
	10-20	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.19	3.0-6.0	0.5-2.5	.20	.20			
	20-26	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---	---	---			
Jory, sedimentary bedrock-------------	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			
18:														
Bellpine-------------	0-6	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	3	6	48
	6-10	5-15	40-60	35-45	1.20-1.30	1.40-14.00	0.16-0.24	2.0-4.0	1.5-5.5	.15	.15			
	10-20	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.19	3.0-6.0	0.5-2.5	.20	.20			
	20-26	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---	---	---			
Jory, sedimentary bedrock-------------	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
19:														
Bellpine	0-6	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	3	6	48
	6-10	5-15	40-60	35-45	1.20-1.30	1.40-14.00	0.16-0.24	2.0-4.0	1.5-5.5	.15	.15			
	10-20	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.19	3.0-6.0	0.5-2.5	.20	.20			
	20-26	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---	---	---			
Jory, sedimentary bedrock	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			
20:														
Bellpine	0-6	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	3	6	48
	6-10	5-15	40-60	35-45	1.20-1.30	1.40-14.00	0.16-0.24	2.0-4.0	1.5-5.5	.15	.15			
	10-20	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.19	3.0-6.0	0.5-2.5	.20	.20			
	20-26	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---	---	---			
Jory, sedimentary bedrock	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			
21:														
Blachly	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-7	---	---	15-25	1.00-1.10	4.00-14.11	0.14-0.17	1.0-2.9	6.0-12	.17	.20			
	7-16	---	---	20-35	1.00-1.20	4.00-14.11	0.16-0.20	3.0-5.9	4.0-8.0	.17	.20			
	16-27	---	---	35-50	1.10-1.30	1.40-4.00	0.16-0.20	3.0-5.9	1.0-5.0	.20	.28			
	27-54	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.18	3.0-5.9	1.0-4.0	.24	.28			
	54-65	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.18	3.0-5.9	0.0-1.0	.20	.24			
	65-96	---	---	35-45	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.0-1.0	.24	.28			
Kilowan	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-8	---	---	27-35	1.00-1.10	4.00-14.00	0.16-0.21	3.0-5.9	6.0-12	.20	.28			
	8-14	---	---	30-45	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	4.0-8.0	.17	.24			
	14-23	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.17	.24			
	23-31	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.20	.28			
	31-41	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
22:														
Blachly--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-7	---	---	15-25	1.00-1.10	4.00-14.11	0.14-0.17	1.0-2.9	6.0-12	.17	.20			
	7-16	---	---	20-35	1.00-1.20	4.00-14.11	0.16-0.20	3.0-5.9	4.0-8.0	.17	.20			
	16-27	---	---	35-50	1.10-1.30	1.40-4.00	0.16-0.20	3.0-5.9	1.0-5.0	.20	.28			
	27-54	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.18	3.0-5.9	1.0-4.0	.24	.28			
	54-65	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.18	3.0-5.9	0.0-1.0	.20	.24			
	65-96	---	---	35-45	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.0-1.0	.24	.28			
Kilowan--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-8	---	---	27-35	1.00-1.10	4.00-14.00	0.16-0.21	3.0-5.9	6.0-12	.20	.28			
	8-14	---	---	30-45	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	4.0-8.0	.17	.24			
	14-23	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.17	.24			
	23-31	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.20	.28			
	31-41	---	---	---	---	---	---	---	---	---	---			
23:														
Bohannon-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	2-10	---	---	15-25	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-12	.10	.20			
	10-19	---	---	15-25	1.00-1.20	4.00-14.00	0.12-0.15	1.0-2.9	4.0-10	.15	.24			
	19-27	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	2.0-6.0	.17	.32			
	27-34	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	0.0-2.0	.20	.37			
	34-44	---	---	---	---	---	---	---	---	---	---			
Preacher-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-12	---	---	15-25	0.80-1.00	14.00-42.00	0.30-0.45	1.0-2.9	5.0-12	.17	.20			
	12-18	---	---	15-25	1.00-1.20	4.00-14.00	0.14-0.18	1.0-2.9	4.0-10	.20	.24			
	18-29	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.20	.28			
	44-53	---	---	10-35	1.30-1.50	4.00-14.00	0.14-0.18	1.0-2.9	0.0-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---	---	---			
24:														
Bohannon-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	2-10	---	---	15-25	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-12	.10	.20			
	10-19	---	---	15-25	1.00-1.20	4.00-14.00	0.12-0.15	1.0-2.9	4.0-10	.15	.24			
	19-27	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	2.0-6.0	.17	.32			
	27-34	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	0.0-2.0	.20	.37			
	34-44	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
24:														
Preacher-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-12	---	---	15-25	0.80-1.00	14.00-42.00	0.30-0.45	1.0-2.9	5.0-12	.17	.20			
	12-18	---	---	15-25	1.00-1.20	4.00-14.00	0.14-0.18	1.0-2.9	4.0-10	.20	.24			
	18-29	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.20	.28			
	44-53	---	---	10-35	1.30-1.50	4.00-14.00	0.14-0.18	1.0-2.9	0.0-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---	---	---			
25:														
Briedwell------------	0-7	25-45	30-50	15-25	1.10-1.30	4.00-14.00	0.14-0.19	0.0-2.9	4.0-7.0	.10	.20	5	6	48
	7-17	15-45	30-60	25-35	1.10-1.30	4.00-14.00	0.10-0.22	1.5-5.9	1.0-4.0	.15	.28			
	17-30	20-45	25-53	25-30	1.20-1.30	4.00-14.00	0.03-0.14	3.0-5.9	0.5-1.5	.10	.37			
	30-60	20-45	25-53	25-30	1.20-1.30	4.00-14.00	0.03-0.14	3.0-5.9	0.2-1.0	.10	.37			
26:														
Briedwell------------	0-7	25-45	30-50	15-25	1.10-1.30	4.00-14.00	0.14-0.19	0.0-2.9	4.0-7.0	.10	.20	5	6	48
	7-17	15-45	30-60	25-35	1.10-1.30	4.00-14.00	0.10-0.22	1.5-5.9	1.0-4.0	.15	.28			
	17-30	20-45	25-53	25-30	1.20-1.30	4.00-14.00	0.03-0.14	3.0-5.9	0.5-1.5	.10	.37			
	30-60	20-45	25-53	25-30	1.20-1.30	4.00-14.00	0.03-0.14	3.0-5.9	0.2-1.0	.10	.37			
27:														
Burntwoods-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	8	0
	1-3	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-12	---	---	12-20	0.75-0.90	14.00-42.00	0.11-0.24	1.0-2.9	8.0-12	.05	.24			
	12-19	---	---	12-20	0.75-0.90	14.00-42.00	0.11-0.24	1.0-2.9	4.0-8.0	.05	.28			
	19-27	---	---	15-30	1.00-1.20	4.00-14.00	0.04-0.11	1.0-2.9	2.0-4.0	.10	.28			
	27-41	---	---	20-30	1.00-1.20	4.00-14.00	0.04-0.11	1.0-2.9	1.0-4.0	.10	.32			
	41-53	---	---	20-30	1.10-1.30	4.00-14.00	0.04-0.11	1.0-2.9	0.0-2.0	.05	.32			
	53-67	---	---	20-30	1.20-1.40	4.00-14.00	0.04-0.11	1.0-2.9	0.0-1.0	.05	.28			
Oldblue--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-6	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.40	1.0-2.9	8.0-12	.10	.24			
	6-12	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.40	1.0-2.9	4.0-8.0	.20	.28			
	12-21	---	---	15-25	0.80-1.00	4.00-14.00	0.30-0.45	1.0-2.9	2.0-6.0	.20	.28			
	21-38	---	---	20-30	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	1.0-4.0	.28	.28			
	38-75	---	---	20-30	1.20-1.40	4.00-14.00	0.19-0.21	1.0-2.9	0.0-2.0	.28	.28			
	75-85	---	---	---	---	---	---	---	---	---	---			
28:														
Camas----------------	0-2	60-80	10-35	5-15	1.20-1.40	14.00-42.00	0.08-0.13	0.0-2.9	2.0-4.0	.10	.15	2	4	86
	2-10	60-80	10-35	5-15	1.20-1.40	14.00-42.00	0.07-0.13	0.0-2.9	1.0-3.0	.10	.15			
	10-13	60-90	10-35	5-15	1.20-1.40	14.00-141.00	0.02-0.11	0.0-2.9	1.0-2.0	.10	.20			
	13-60	75-95	5-15	1-8	1.40-1.60	141.00-705.00	0.01-0.06	0.0-2.9	0.0-0.5	.02	.15			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
29:														
Camas, rarely flooded-------------	0-7	60-80	10-35	5-15	1.20-1.40	14.00-42.00	0.08-0.13	0.0-2.9	2.0-4.0	.10	.15	2	4	86
	7-10	60-80	10-35	5-15	1.20-1.40	14.00-42.00	0.07-0.13	0.0-2.9	1.0-3.0	.10	.15			
	10-60	75-95	5-15	1-8	1.40-1.60	141.00-705.00	0.01-0.06	0.0-2.9	0.0-0.5	.02	.15			
30:														
Caterl---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-9	---	---	12-20	0.75-0.90	14.00-42.00	0.20-0.35	1.0-2.9	8.0-12	.15	.32			
	9-18	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	4.0-8.0	.10	.28			
	18-37	---	---	18-30	0.75-0.90	4.00-14.00	0.15-0.26	1.0-2.9	1.0-4.0	.05	.28			
	37-55	---	---	12-30	0.80-1.00	4.00-14.00	0.09-0.16	1.0-2.9	0.0-2.0	.05	.43			
	55-59	---	---	---	---	---	---	---	---	---	---			
Laderly--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-15	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.28	1.0-2.9	8.0-12	.10	.28			
	15-29	---	---	15-27	0.75-0.90	4.00-14.00	0.10-0.28	1.0-2.9	4.0-8.0	.05	.28			
	29-37	---	---	15-27	0.80-1.00	4.00-14.00	0.10-0.25	1.0-2.9	1.0-4.0	.02	.28			
	37-41	---	---	---	---	---	---	---	---	---	---			
Romanose-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-7	---	---	12-20	0.75-0.90	14.00-42.00	0.12-0.27	1.0-2.9	8.0-12	.05	.17			
	7-11	---	---	15-20	0.75-0.90	14.00-42.00	0.12-0.20	1.0-2.9	4.0-8.0	.05	.24			
	11-16	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	1.0-4.0	.05	.28			
	16-20	---	---	---	---	---	---	---	---	---	---			
31:														
Caterl---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-9	---	---	12-20	0.75-0.90	14.00-42.00	0.20-0.35	1.0-2.9	8.0-12	.15	.32			
	9-18	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	4.0-8.0	.10	.28			
	18-37	---	---	18-30	0.75-0.90	4.00-14.00	0.15-0.26	1.0-2.9	1.0-4.0	.05	.28			
	37-55	---	---	12-30	0.80-1.00	4.00-14.00	0.09-0.16	1.0-2.9	0.0-2.0	.05	.43			
	55-59	---	---	---	---	---	---	---	---	---	---			
Laderly--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-15	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.28	1.0-2.9	8.0-12	.10	.28			
	15-29	---	---	15-27	0.75-0.90	4.00-14.00	0.10-0.28	1.0-2.9	4.0-8.0	.05	.28			
	29-37	---	---	15-27	0.80-1.00	4.00-14.00	0.10-0.25	1.0-2.9	1.0-4.0	.02	.28			
	37-41	---	---	---	---	---	---	---	---	---	---			
Romanose-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-7	---	---	12-20	0.75-0.90	14.00-42.00	0.12-0.27	1.0-2.9	8.0-12	.05	.17			
	7-11	---	---	15-20	0.75-0.90	14.00-42.00	0.12-0.20	1.0-2.9	4.0-8.0	.05	.24			
	11-16	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	1.0-4.0	.05	.28			
	16-20	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
32:														
Caterl	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-9	---	---	12-20	0.75-0.90	14.00-42.00	0.20-0.35	1.0-2.9	8.0-12	.15	.32			
	9-18	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	4.0-8.0	.10	.28			
	18-37	---	---	18-30	0.75-0.90	4.00-14.00	0.15-0.26	1.0-2.9	1.0-4.0	.05	.28			
	37-55	---	---	12-30	0.80-1.00	4.00-14.00	0.09-0.16	1.0-2.9	0.0-2.0	.05	.43			
	55-59	---	---	---	---	---	---	---	---	---	---			
Murtip	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-19	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	8.0-12	.20	.28			
	19-31	---	---	18-30	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	4.0-8.0	.24	.28			
	31-45	---	---	18-30	0.75-0.90	4.00-14.00	0.25-0.45	1.0-2.9	1.0-4.0	.24	.24			
	45-56	---	---	18-30	0.80-1.00	4.00-14.00	0.25-0.35	1.0-2.9	0.0-2.0	.20	.32			
	56-66	---	---	---	---	---	---	---	---	---	---			
Giveout	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-16	---	---	12-20	0.75-0.90	14.00-42.00	0.27-0.36	1.0-2.9	8.0-12	.10	.20			
	16-28	---	---	18-30	0.75-0.90	4.00-14.00	0.27-0.40	1.0-2.9	4.0-8.0	.15	.28			
	28-36	---	---	18-30	0.80-1.00	4.00-14.00	0.27-0.40	1.0-2.9	1.0-4.0	.20	.28			
	36-46	---	---	---	---	---	---	---	---	---	---			
33:														
Caterl	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-9	---	---	12-20	0.75-0.90	14.00-42.00	0.20-0.35	1.0-2.9	8.0-12	.15	.32			
	9-18	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	4.0-8.0	.10	.28			
	18-37	---	---	18-30	0.75-0.90	4.00-14.00	0.15-0.26	1.0-2.9	1.0-4.0	.05	.28			
	37-55	---	---	12-30	0.80-1.00	4.00-14.00	0.09-0.16	1.0-2.9	0.0-2.0	.05	.43			
	55-59	---	---	---	---	---	---	---	---	---	---			
Murtip	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-19	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	8.0-12	.20	.28			
	19-31	---	---	18-30	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	4.0-8.0	.24	.28			
	31-45	---	---	18-30	0.75-0.90	4.00-14.00	0.25-0.45	1.0-2.9	1.0-4.0	.24	.24			
	45-56	---	---	18-30	0.80-1.00	4.00-14.00	0.25-0.35	1.0-2.9	0.0-2.0	.20	.32			
	56-66	---	---	---	---	---	---	---	---	---	---			
Laderly	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-15	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.28	1.0-2.9	8.0-12	.10	.28			
	15-29	---	---	15-27	0.75-0.90	4.00-14.00	0.10-0.28	1.0-2.9	4.0-8.0	.05	.28			
	29-37	---	---	15-27	0.80-1.00	4.00-14.00	0.10-0.25	1.0-2.9	1.0-4.0	.02	.28			
	37-41	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
34:														
Chapman--------------	0-8	25-45	30-50	18-27	1.10-1.30	4.00-14.00	0.16-0.21	0.0-2.9	2.0-5.0	.20	.20	5	6	48
	8-14	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.15-0.23	0.0-5.9	2.0-4.0	.15	.20			
	14-23	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.15-0.23	0.0-5.9	1.0-3.0	.24	.28			
	23-33	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.14-0.22	0.0-5.9	0.8-2.0	.24	.32			
	33-42	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.14-0.22	0.0-5.9	0.5-1.0	.28	.37			
	42-50	40-65	25-50	5-20	1.30-1.50	14.00-42.00	0.07-0.15	0.0-2.9	0.2-0.5	.28	.49			
	50-60	55-80	10-40	3-15	1.40-1.50	42.00-141.00	0.05-0.08	0.0-2.9	0.1-0.3	.15	.43			
35:														
Chapman, high precipitation-------	0-8	25-45	30-50	18-27	1.10-1.30	4.00-14.00	0.16-0.21	0.0-2.9	2.0-5.0	.20	.20	5	6	48
	8-14	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.15-0.23	0.0-5.9	2.0-4.0	.15	.20			
	14-23	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.15-0.23	0.0-5.9	1.0-3.0	.24	.28			
	23-33	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.14-0.22	0.0-5.9	0.8-2.0	.24	.32			
	33-42	20-45	30-50	20-35	1.20-1.40	4.00-14.00	0.14-0.22	0.0-5.9	0.5-1.0	.28	.37			
	42-50	40-65	25-50	5-20	1.30-1.50	14.00-42.00	0.07-0.15	0.0-2.9	0.2-0.5	.28	.49			
	50-60	55-80	10-40	3-15	1.40-1.50	42.00-141.00	0.05-0.08	0.0-2.9	0.1-0.3	.15	.43			
36:														
Chehalem-------------	0-7	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.24	3.0-5.9	3.0-6.0	.20	.20	5	6	48
	7-11	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.23	3.0-5.9	2.0-4.0	.24	.24			
	11-23	10-20	40-60	30-40	1.20-1.50	4.00-14.00	0.18-0.23	3.0-5.9	1.0-3.0	.24	.28			
	23-36	10-20	30-55	35-50	1.20-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.5-1.5	.20	.24			
	36-49	10-20	30-50	40-50	1.20-1.50	0.42-1.40	0.13-0.17	6.0-8.9	0.3-1.0	.24	.32			
	49-60	10-25	25-60	30-50	1.20-1.50	0.42-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.24	.37			
37:														
Chehalem-------------	0-7	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.24	3.0-5.9	3.0-6.0	.20	.20	5	6	48
	7-11	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.23	3.0-5.9	2.0-4.0	.24	.24			
	11-23	10-20	40-60	30-40	1.20-1.50	4.00-14.00	0.18-0.23	3.0-5.9	1.0-3.0	.24	.28			
	23-36	10-20	30-55	35-50	1.20-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.5-1.5	.20	.24			
	36-49	10-20	30-50	40-50	1.20-1.50	0.42-1.40	0.13-0.17	6.0-8.9	0.3-1.0	.24	.32			
	49-60	10-25	25-60	30-50	1.20-1.50	0.42-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.24	.37			
38:														
Chehalis-------------	0-7	5-25	55-80	15-27	1.10-1.30	4.00-14.00	0.20-0.25	1.0-5.9	3.0-7.0	.20	.24	5	6	48
	7-24	5-25	50-65	26-35	1.10-1.30	4.00-14.00	0.19-0.24	0.0-5.9	2.0-5.0	.20	.24			
	24-44	5-25	50-65	20-35	1.20-1.40	4.00-14.00	0.19-0.23	0.0-5.9	1.0-4.0	.24	.28			
	44-60	15-60	25-65	15-35	1.20-1.50	4.00-42.00	0.11-0.22	0.0-5.9	0.4-2.0	.32	.49			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
39:														
Chehalis, high precipitation-------	0-7	5-25	55-80	15-27	1.10-1.30	4.00-14.00	0.20-0.25	0.0-5.9	3.0-7.0	.20	.24	5	6	48
	7-24	5-25	50-65	25-35	1.10-1.30	4.00-14.00	0.19-0.24	0.0-5.9	2.0-5.0	.20	.24			
	24-44	5-25	50-65	20-35	1.20-1.40	4.00-14.00	0.19-0.23	0.0-5.9	1.0-4.0	.24	.28			
	44-60	15-60	25-65	15-35	1.20-1.50	4.00-42.00	0.11-0.22	0.0-5.9	0.4-2.0	.32	.49			
40:														
Chehalis-------------	0-8	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.20-0.25	1.0-5.9	3.0-7.0	.20	.24	5	6	48
	8-16	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.19-0.24	3.0-5.9	2.0-5.0	.20	.24			
	16-38	5-25	50-65	20-35	1.20-1.40	4.00-14.00	0.19-0.23	0.0-5.9	1.0-4.0	.24	.28			
	38-45	5-25	50-65	20-35	1.20-1.40	4.00-14.00	0.18-0.23	0.0-5.9	0.5-3.0	.32	.37			
	45-60	15-60	25-65	15-35	1.20-1.50	4.00-42.00	0.11-0.22	0.0-5.9	0.4-2.0	.32	.49			
41:														
Chintimini-----------	0-4	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	8	0
	4-9	---	---	12-20	0.80-1.00	4.00-14.00	0.15-0.25	1.0-2.9	5.0-12	.05	.28			
	9-20	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.20	1.0-2.9	4.0-10	.05	.24			
	20-38	---	---	15-30	1.10-1.40	4.00-14.00	0.05-0.11	1.0-2.9	1.0-6.0	.05	.24			
	38-47	---	---	15-30	1.30-1.50	4.00-14.00	0.16-0.21	1.0-2.9	0.0-3.0	.24	.28			
	47-51	---	---	---	---	---	---	---	---	---	---			
	51-55	---	---	---	---	---	---	---	---	---	---			
Blodgett-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	7	38
	1-6	---	---	12-20	0.80-1.00	14.00-42.00	0.16-0.26	1.0-3.0	7.0-12	.10	.28			
	6-11	---	---	15-25	1.00-1.20	4.00-14.00	0.04-0.10	1.0-3.0	4.0-8.0	.05	.28			
	11-16	---	---	15-25	1.10-1.30	4.00-14.00	0.04-0.10	1.0-3.0	1.0-4.0	.05	.32			
	16-19	---	---	---	---	---	---	---	---	---	---			
	19-23	---	---	---	---	---	---	---	---	---	---			
42:														
Chintimini-----------	0-4	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	8	0
	4-9	---	---	12-20	0.80-1.00	4.00-14.00	0.15-0.25	1.0-2.9	5.0-12	.05	.28			
	9-20	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.20	1.0-2.9	4.0-10	.05	.24			
	20-38	---	---	15-30	1.10-1.40	4.00-14.00	0.05-0.11	1.0-2.9	1.0-6.0	.05	.24			
	38-47	---	---	15-30	1.30-1.50	4.00-14.00	0.16-0.21	1.0-2.9	0.0-3.0	.24	.28			
	47-51	---	---	---	---	---	---	---	---	---	---			
	51-55	---	---	---	---	---	---	---	---	---	---			
Blodgett-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	7	38
	1-6	---	---	12-20	0.80-1.00	14.00-42.00	0.16-0.26	1.0-3.0	7.0-12	.10	.28			
	6-11	---	---	15-25	1.00-1.20	4.00-14.00	0.04-0.10	1.0-3.0	4.0-8.0	.05	.28			
	11-16	---	---	15-25	1.10-1.30	4.00-14.00	0.04-0.10	1.0-3.0	1.0-4.0	.05	.32			
	16-19	---	---	---	---	---	---	---	---	---	---			
	19-23	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
42:														
Fiverivers-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-4	---	---	12-20	0.80-1.00	14.00-42.00	0.18-0.27	1.0-2.9	5.0-12	.05	.20			
	4-9	---	---	18-25	0.80-1.00	4.00-14.00	0.21-0.34	3.0-5.9	4.0-10	.10	.24			
	9-15	---	---	20-30	1.10-1.40	4.00-14.00	0.11-0.15	3.0-5.9	2.0-6.0	.10	.20			
	15-25	---	---	20-30	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	1.0-4.0	.17	.24			
	25-36	---	---	20-30	1.30-1.50	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.17	.24			
	36-46	---	---	---	---	---	---	---	---	---	---			
43:														
Chintimini-----------	0-4	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	8	0
	4-9	---	---	12-20	0.80-1.00	4.00-14.00	0.15-0.25	1.0-2.9	5.0-12	.05	.28			
	9-20	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.20	1.0-2.9	4.0-10	.05	.24			
	20-38	---	---	15-30	1.10-1.40	4.00-14.00	0.05-0.11	1.0-2.9	1.0-6.0	.05	.24			
	38-47	---	---	15-30	1.30-1.50	4.00-14.00	0.16-0.21	1.0-2.9	0.0-3.0	.24	.28			
	47-51	---	---	---	---	---	---	---	---	---	---			
	51-55	---	---	---	---	---	---	---	---	---	---			
Grassmountain--------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-7	---	---	12-20	0.80-1.00	14.00-42.00	0.28-0.38	1.0-2.9	5.0-12	.20	.37			
	7-15	---	---	18-25	0.80-1.00	4.00-14.00	0.30-0.40	3.0-5.9	4.0-10	.24	.32			
	15-29	---	---	20-30	1.10-1.40	4.00-14.00	0.14-0.18	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-30	1.20-1.40	4.00-14.00	0.16-0.20	3.0-5.9	0.0-3.0	.24	.32			
	44-69	---	---	20-30	1.30-1.50	4.00-14.00	0.16-0.20	3.0-5.9	0.0-1.0	.28	.37			
	69-79	---	---	---	---	---	---	---	---	---	---			
44:														
Chismore-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-9	---	---	18-27	1.00-1.20	4.00-14.00	0.19-0.21	1.0-2.9	4.0-8.0	.28	.28			
	9-17	---	---	18-27	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	4.0-8.0	.28	.28			
	17-22	---	---	35-45	1.10-1.30	1.40-4.00	0.19-0.21	3.0-5.9	1.0-4.0	.28	.28			
	22-30	---	---	35-45	1.20-1.40	1.40-4.00	0.19-0.21	3.0-5.9	0.0-3.0	.32	.32			
	30-43	---	---	35-45	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-3.0	.32	.32			
	43-66	---	---	35-45	1.30-1.50	0.42-1.40	0.15-0.17	3.0-5.9	0.0-3.0	.32	.32			
Pyburn---------------	0-13	---	---	40-50	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	5.0-10	.24	.24	5	4	86
	13-20	---	---	35-45	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	4.0-8.0	.24	.24			
	20-36	---	---	35-45	1.20-1.40	1.40-4.00	0.14-0.16	3.0-5.9	1.0-4.0	.24	.24			
	36-48	---	---	50-70	1.10-1.30	0.42-1.40	0.14-0.16	3.0-5.9	1.0-4.0	.24	.24			
	48-66	---	---	35-50	1.10-1.30	0.10-0.42	0.19-0.21	3.0-5.9	0.0-3.0	.37	.37			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
45:														
Chismore-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-9	---	---	18-27	1.00-1.20	4.00-14.00	0.19-0.21	1.0-2.9	4.0-8.0	.28	.28			
	9-17	---	---	18-27	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	4.0-8.0	.28	.28			
	17-22	---	---	35-45	1.10-1.30	1.40-4.00	0.19-0.21	3.0-5.9	1.0-4.0	.28	.28			
	22-30	---	---	35-45	1.20-1.40	1.40-4.00	0.19-0.21	3.0-5.9	0.0-3.0	.32	.32			
	30-43	---	---	35-45	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-3.0	.32	.32			
	43-66	---	---	35-45	1.30-1.50	0.42-1.40	0.15-0.17	3.0-5.9	0.0-3.0	.32	.32			
Pyburn---------------	0-13	---	---	40-50	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	5.0-10	.24	.24	5	4	86
	13-20	---	---	35-45	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	4.0-8.0	.24	.24			
	20-36	---	---	35-45	1.20-1.40	1.40-4.00	0.14-0.16	3.0-5.9	1.0-4.0	.24	.24			
	36-48	---	---	50-70	1.10-1.30	0.42-1.40	0.14-0.16	3.0-5.9	1.0-4.0	.24	.24			
	48-66	---	---	35-50	1.10-1.30	0.10-0.42	0.19-0.21	3.0-5.9	0.0-3.0	.37	.37			
46:														
Cloquato-------------	0-7	5-25	55-80	5-20	1.10-1.30	4.00-14.00	0.21-0.25	0.0-2.9	3.0-7.0	.28	.28	5	5	56
	7-12	5-25	55-80	5-20	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	2.0-5.0	.32	.32			
	12-40	5-25	55-80	5-18	1.20-1.40	4.00-14.00	0.20-0.23	0.0-2.9	1.0-3.0	.43	.43			
	40-52	30-65	25-60	5-10	1.25-1.45	14.00-42.00	0.12-0.22	0.0-2.9	0.5-1.5	.32	.43			
	52-72	65-95	2-25	2-10	1.30-1.50	14.00-141.00	0.04-0.14	0.0-2.9	0.2-1.0	.24	.32			
47:														
Cloquato, high precipitation-------	0-7	5-25	55-80	5-20	1.10-1.30	4.00-14.00	0.21-0.25	0.0-2.9	3.0-7.0	.28	.28	5	5	56
	7-12	5-25	55-80	5-20	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	2.0-5.0	.32	.32			
	12-40	5-25	55-80	5-18	1.20-1.40	4.00-14.00	0.20-0.23	0.0-2.9	1.0-3.0	.43	.43			
	40-52	30-65	25-60	5-10	1.25-1.45	14.00-42.00	0.12-0.22	0.0-2.9	0.5-1.5	.32	.43			
	52-72	65-95	2-25	2-10	1.30-1.50	14.00-141.00	0.04-0.14	0.0-2.9	0.2-1.0	.24	.32			
48:														
Coburg, occasionally flooded-------------	0-10	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.24	1.0-5.9	3.0-6.0	.24	.24	5	6	48
	10-18	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.23	3.0-5.9	2.0-4.0	.20	.20			
	18-28	10-20	40-55	35-45	1.20-1.40	1.40-4.00	0.14-0.22	3.0-5.9	1.0-3.0	.24	.28			
	28-43	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	43-60	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.1-0.7	.32	.37			
Coburg, rarely flooded-------------	0-9	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.24	1.0-5.9	3.0-6.0	.24	.24	5	6	48
	9-15	10-20	45-63	27-35	1.20-1.40	4.00-14.00	0.18-0.23	3.0-5.9	2.0-4.0	.20	.20			
	15-24	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.22	3.0-5.9	1.0-3.0	.24	.28			
	24-33	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	33-41	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.2-0.7	.32	.37			
	41-60	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.1-0.3	.37	.43			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
49:														
Coburg---------------	0-7	10-20	50-60	27-35	1.10-1.30	4.00-14.00	0.19-0.24	1.0-5.9	3.0-6.0	.24	.24	5	6	48
	7-18	10-20	45-55	35-45	1.20-1.40	1.40-14.00	0.15-0.23	3.0-5.9	2.0-4.0	.20	.20			
	18-28	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.22	3.0-5.9	1.0-3.0	.24	.28			
	28-41	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	41-53	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.2-0.7	.32	.37			
	53-65	35-55	25-50	15-30	1.30-1.50	4.00-42.00	0.12-0.21	0.0-5.9	0.1-0.3	.43	.49			
50:														
Coburg, rarely flooded-------------	0-9	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.19-0.24	1.0-5.9	3.0-6.0	.24	.24	5	6	48
	9-15	10-20	45-63	27-35	1.20-1.40	4.00-14.00	0.18-0.23	3.0-5.9	2.0-4.0	.20	.20			
	15-24	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.22	3.0-5.9	1.0-3.0	.24	.28			
	24-33	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	33-41	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.2-0.7	.32	.37			
	41-60	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.1-0.3	.37	.43			
51:														
Concord--------------	0-6	2-10	70-80	15-25	1.25-1.45	4.00-14.00	0.19-0.23	0.5-2.9	2.0-4.5	.37	.37	5	6	48
	6-9	2-10	60-78	20-30	1.40-1.50	4.00-14.00	0.18-0.23	0.5-2.9	0.8-4.0	.43	.43			
	9-15	2-10	60-78	20-30	1.40-1.50	4.00-14.00	0.18-0.22	0.5-2.9	0.5-2.0	.49	.49			
	15-19	2-7	47-63	35-45	1.20-1.35	0.01-1.40	0.15-0.21	7.5-13.0	0.4-0.7	.43	.43			
	19-24	2-11	39-58	40-50	1.20-1.35	0.01-0.42	0.15-0.17	9.0-15.0	0.2-0.5	.43	.43			
	24-29	2-11	39-58	40-50	1.20-1.35	0.01-0.42	0.15-0.17	9.0-15.0	0.1-0.4	.43	.43			
	29-60	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.4	.55	.55			
52:														
Conser---------------	0-9	5-15	45-65	27-40	1.10-1.30	4.00-14.00	0.19-0.25	6.0-8.9	4.0-8.0	.20	.24	5	6	48
	9-14	5-15	35-60	35-50	1.20-1.40	0.42-1.40	0.14-0.24	6.0-8.9	2.0-5.0	.15	.20			
	14-27	5-15	30-60	35-60	1.30-1.50	0.42-1.40	0.13-0.23	6.0-8.9	1.0-3.0	.15	.20			
	27-41	5-15	30-60	35-60	1.30-1.50	0.42-1.40	0.13-0.21	6.0-8.9	0.3-0.7	.24	.28			
	41-49	25-60	20-50	15-30	1.20-1.40	4.00-42.00	0.10-0.21	0.0-5.9	0.2-0.4	.28	.37			
	49-60	25-65	20-50	15-30	1.20-1.40	4.00-42.00	0.10-0.21	0.0-5.9	0.1-0.2	.32	.43			
53:														
Dayton---------------	0-9	2-10	70-80	15-25	1.25-1.45	4.00-14.00	0.19-0.23	0.5-2.9	2.0-4.5	.37	.37	3	6	48
	9-12	2-10	60-78	20-30	1.40-1.50	4.00-14.00	0.18-0.23	0.5-2.9	0.8-4.0	.49	.49			
	12-15	2-10	60-78	20-30	1.40-1.50	4.00-14.00	0.18-0.22	0.5-2.9	0.5-2.0	.49	.49			
	15-22	2-11	39-58	40-50	1.20-1.35	0.01-0.42	0.15-0.17	9.0-15.0	0.4-0.7	.37	.37			
	22-29	2-11	39-58	40-50	1.20-1.35	0.01-0.42	0.15-0.17	9.0-15.0	0.3-0.5	.43	.43			
	29-40	2-11	39-58	40-50	1.20-1.35	0.01-0.42	0.15-0.17	9.0-15.0	0.2-0.4	.43	.43			
	40-53	2-15	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	53-64	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
	64-76	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.0-0.1	.55	.55			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
54:														
Dayton, clay substratum	0-7	2-5	70-80	15-25	1.15-1.50	4.00-14.00	0.20-0.22	1.0-3.0	2.2-3.5	.49	.49	3	5	56
	7-12	3-7	60-78	20-30	1.30-1.55	4.00-14.00	0.19-0.21	1.0-3.0	0.6-1.5	.55	.55			
	12-16	3-7	60-78	20-30	1.30-1.55	4.00-14.00	0.19-0.21	1.0-6.0	0.5-1.0	.55	.55			
	16-30	2-10	39-58	40-50	1.25-1.45	0.01-0.42	0.15-0.17	9.0-15.0	0.3-0.9	.37	.37			
	30-45	2-10	39-58	40-50	1.25-1.45	0.01-0.42	0.15-0.17	9.0-15.0	0.3-0.6	.37	.37			
	45-60	2-11	39-58	40-50	1.25-1.45	0.01-0.42	0.15-0.17	9.0-15.0	0.1-0.2	.24	.37			
55:														
Digger	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-4	---	---	15-25	0.90-1.10	4.00-14.00	0.06-0.11	1.0-2.9	4.0-8.0	.05	.24			
	4-16	---	---	15-25	1.00-1.20	4.00-14.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.28			
	16-30	---	---	15-27	1.10-1.30	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.37			
	30-38	---	---	15-27	1.20-1.40	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.37			
	38-48	---	---	---	---	---	---	---	---	---	---			
	48-52	---	---	---	---	---	---	---	---	---	---			
Bohannon	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	2-10	---	---	15-25	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-12	.10	.20			
	10-19	---	---	15-25	1.00-1.20	4.00-14.00	0.12-0.15	1.0-2.9	4.0-10	.15	.24			
	19-27	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	2.0-6.0	.17	.32			
	27-34	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	0.0-2.0	.20	.37			
	34-44	---	---	---	---	---	---	---	---	---	---			
56:														
Digger	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-4	---	---	15-25	0.90-1.10	4.00-14.00	0.06-0.11	1.0-2.9	4.0-8.0	.05	.24			
	4-16	---	---	15-25	1.00-1.20	4.00-14.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.28			
	16-30	---	---	15-27	1.10-1.30	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.37			
	30-38	---	---	15-27	1.20-1.40	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.37			
	38-48	---	---	---	---	---	---	---	---	---	---			
	48-52	---	---	---	---	---	---	---	---	---	---			
Remote	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	8	0
	1-5	---	---	15-25	0.90-1.10	4.00-14.00	0.07-0.12	1.0-2.9	4.0-8.0	.05	.24			
	5-17	---	---	15-30	1.00-1.20	4.00-14.00	0.04-0.12	1.0-2.9	1.0-4.0	.05	.24			
	17-33	---	---	15-30	1.10-1.20	4.00-14.00	0.04-0.12	1.0-2.9	0.0-3.0	.05	.28			
	33-42	---	---	15-30	1.20-1.40	4.00-14.00	0.04-0.12	1.0-2.9	0.0-3.0	.05	.32			
	42-72	---	---	15-30	1.20-1.40	4.00-14.00	0.04-0.12	1.0-2.9	0.0-1.0	.10	.37			
Umpcoos	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-5	---	---	15-20	0.90-1.10	4.00-14.00	0.06-0.11	1.0-2.9	4.0-8.0	.05	.24			
	5-12	---	---	15-25	1.10-1.30	4.00-14.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.28			
	12-16	---	---	15-25	1.20-1.40	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.32			
	16-20	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
57:														
Digger	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-4	---	---	15-25	0.90-1.10	4.00-14.00	0.06-0.11	1.0-2.9	4.0-8.0	.05	.24			
	4-16	---	---	15-25	1.00-1.20	4.00-14.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.28			
	16-30	---	---	15-27	1.10-1.30	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.37			
	30-38	---	---	15-27	1.20-1.40	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.37			
	38-48	---	---	---	---	---	---	---	---	---	---			
	48-52	---	---	---	---	---	---	---	---	---	---			
Umpcoos	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-5	---	---	15-20	0.90-1.10	4.00-14.00	0.06-0.11	1.0-2.9	4.0-8.0	.05	.24			
	5-12	---	---	15-25	1.10-1.30	4.00-14.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.28			
	12-16	---	---	15-25	1.20-1.40	4.00-14.00	0.04-0.10	1.0-2.9	0.0-3.0	.05	.32			
	16-20	---	---	---	---	---	---	---	---	---	---			
Remote	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	8	0
	1-5	---	---	15-25	0.90-1.10	4.00-14.00	0.07-0.12	1.0-2.9	4.0-8.0	.05	.24			
	5-17	---	---	15-30	1.00-1.20	4.00-14.00	0.04-0.12	1.0-2.9	1.0-4.0	.05	.24			
	17-33	---	---	15-30	1.10-1.20	4.00-14.00	0.04-0.12	1.0-2.9	0.0-3.0	.05	.28			
	33-42	---	---	15-30	1.20-1.40	4.00-14.00	0.04-0.12	1.0-2.9	0.0-3.0	.05	.32			
	42-72	---	---	15-30	1.20-1.40	4.00-14.00	0.04-0.12	1.0-2.9	0.0-1.0	.10	.37			
58:														
Dixonville	0-4	10-20	40-55	27-40	1.10-1.20	4.00-14.00	0.21-0.25	3.0-5.9	3.0-7.5	.15	.24	3	4	86
	4-12	5-20	40-55	30-50	1.20-1.40	1.40-4.00	0.14-0.24	3.0-8.9	2.5-5.5	.15	.20			
	12-21	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.10-0.19	6.0-8.9	2.0-3.5	.10	.24			
	21-34	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.09-0.18	6.0-8.9	0.5-2.5	.10	.24			
	34-44	---	---	---	---	---	---	---	---	---	---			
Gellatly	0-8	10-20	40-55	27-40	1.10-1.20	4.00-14.00	0.21-0.25	3.0-5.9	3.0-7.5	.15	.20	5	4	86
	8-14	5-20	40-55	35-50	1.20-1.40	1.40-4.00	0.12-0.24	3.0-8.9	2.5-5.5	.15	.24			
	14-29	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.13-0.19	6.0-8.9	1.5-3.5	.20	.24			
	29-45	10-20	30-55	30-50	1.30-1.60	0.42-4.00	0.13-0.21	3.0-8.9	0.2-1.0	.32	.37			
	45-61	10-20	30-55	30-50	1.30-1.60	0.42-4.00	0.12-0.20	3.0-8.9	0.2-0.5	.28	.37			
	61-71	---	---	---	---	---	---	---	---	---	---			
59:														
Dixonville	0-4	10-20	40-55	27-40	1.10-1.20	4.00-14.00	0.21-0.25	3.0-5.9	3.0-7.5	.15	.24	3	4	86
	4-12	5-20	40-55	30-50	1.20-1.40	1.40-4.00	0.14-0.24	3.0-8.9	2.5-5.5	.15	.20			
	12-21	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.10-0.19	6.0-8.9	2.0-3.5	.10	.24			
	21-34	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.09-0.18	6.0-8.9	0.5-2.5	.10	.24			
	34-44	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
59:														
Gellatly-------------	0-8	10-20	40-55	27-40	1.10-1.20	4.00-14.00	0.21-0.25	3.0-5.9	3.0-7.5	.15	.20	5	4	86
	8-14	5-20	40-55	35-50	1.20-1.40	1.40-4.00	0.12-0.24	3.0-8.9	2.5-5.5	.15	.24			
	14-29	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.13-0.19	6.0-8.9	1.5-3.5	.20	.24			
	29-45	10-20	30-55	30-50	1.30-1.60	0.42-4.00	0.13-0.21	3.0-8.9	0.2-1.0	.32	.37			
	45-61	10-20	30-55	30-50	1.30-1.60	0.42-4.00	0.12-0.20	3.0-8.9	0.2-0.5	.28	.37			
	61-71	---	---	---	---	---	---	---	---	---	---			
60:														
Dixonville-----------	0-4	10-20	40-55	27-40	1.10-1.20	4.00-14.00	0.21-0.25	3.0-5.9	3.0-7.5	.15	.24	3	4	86
	4-12	5-20	40-55	30-50	1.20-1.40	1.40-4.00	0.14-0.24	3.0-8.9	2.5-5.5	.15	.20			
	12-21	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.10-0.19	6.0-8.9	2.0-3.5	.10	.24			
	21-34	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.09-0.18	6.0-8.9	0.5-2.5	.10	.24			
	34-44	---	---	---	---	---	---	---	---	---	---			
Gellatly-------------	0-8	10-20	40-55	27-40	1.10-1.20	4.00-14.00	0.21-0.25	3.0-5.9	3.0-7.5	.15	.20	5	4	86
	8-14	5-20	40-55	35-50	1.20-1.40	1.40-4.00	0.12-0.24	3.0-8.9	2.5-5.5	.15	.24			
	14-29	5-20	30-55	40-55	1.30-1.60	0.42-1.40	0.13-0.19	6.0-8.9	1.5-3.5	.20	.24			
	29-45	10-20	30-55	30-50	1.30-1.60	0.42-4.00	0.13-0.21	3.0-8.9	0.2-1.0	.32	.37			
	45-61	10-20	30-55	30-50	1.30-1.60	0.42-4.00	0.12-0.20	3.0-8.9	0.2-0.5	.28	.37			
	61-71	---	---	---	---	---	---	---	---	---	---			
Witham---------------	0-4	1-15	45-70	27-40	1.10-1.30	0.42-1.40	0.21-0.26	6.0-8.9	5.0-10	.24	.24	5	4	86
	4-12	1-15	30-59	40-60	1.10-1.30	0.01-0.42	0.14-0.20	9.0-15.0	2.0-5.0	.20	.20			
	12-21	1-15	30-49	50-60	1.10-1.30	0.01-0.42	0.13-0.19	10.0-17.0	1.0-3.0	.24	.24			
	21-29	1-15	30-49	50-60	1.10-1.30	0.01-0.42	0.13-0.17	10.0-17.0	0.5-1.0	.28	.28			
	29-60	5-15	25-45	50-60	1.10-1.30	0.01-0.42	0.13-0.17	10.0-17.0	0.1-0.7	.28	.32			
61:														
Dupee----------------	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
62:														
Dupee----------------	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			
63:														
Elsie----------------	0-8	---	---	18-25	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	5.0-12	.32	.32	5	6	48
	8-15	---	---	18-25	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	4.0-10	.32	.32			
	15-22	---	---	18-25	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	1.0-4.0	.43	.43			
	22-35	---	---	22-30	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	1.0-3.0	.37	.37			
	35-53	---	---	22-30	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-2.0	.43	.43			
	53-67	---	---	18-27	1.20-1.40	4.00-14.00	0.16-0.18	3.0-5.9	0.0-1.0	.43	.43			
64:														
Elsie----------------	0-8	---	---	18-25	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	5.0-12	.32	.32	5	6	48
	8-15	---	---	18-25	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	4.0-10	.32	.32			
	15-22	---	---	18-25	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	1.0-4.0	.43	.43			
	22-35	---	---	22-30	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	1.0-3.0	.37	.37			
	35-53	---	---	22-30	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-2.0	.43	.43			
	53-67	---	---	18-27	1.20-1.40	4.00-14.00	0.16-0.18	3.0-5.9	0.0-1.0	.43	.43			
65:														
Fiverivers-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-4	---	---	12-20	0.80-1.00	14.00-42.00	0.18-0.27	1.0-2.9	5.0-12	.05	.20			
	4-9	---	---	18-25	0.80-1.00	4.00-14.00	0.21-0.34	3.0-5.9	4.0-10	.10	.24			
	9-15	---	---	20-30	1.10-1.40	4.00-14.00	0.11-0.15	3.0-5.9	2.0-6.0	.10	.20			
	15-25	---	---	20-30	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	1.0-4.0	.17	.24			
	25-36	---	---	20-30	1.30-1.50	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.17	.24			
	36-46	---	---	---	---	---	---	---	---	---	---			
Grassmountain--------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-7	---	---	12-20	0.80-1.00	14.00-42.00	0.28-0.38	1.0-2.9	5.0-12	.20	.37			
	7-15	---	---	18-25	0.80-1.00	4.00-14.00	0.30-0.40	3.0-5.9	4.0-10	.24	.32			
	15-29	---	---	20-30	1.10-1.40	4.00-14.00	0.14-0.18	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-30	1.20-1.40	4.00-14.00	0.16-0.20	3.0-5.9	0.0-3.0	.24	.32			
	44-69	---	---	20-30	1.30-1.50	4.00-14.00	0.16-0.20	3.0-5.9	0.0-1.0	.28	.37			
	69-79	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
65:														
Chintimini-----------	0-4	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	8	0
	4-9	---	---	12-20	0.80-1.00	4.00-14.00	0.15-0.25	1.0-2.9	5.0-12	.05	.28			
	9-20	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.20	1.0-2.9	4.0-10	.05	.24			
	20-38	---	---	15-30	1.10-1.40	4.00-14.00	0.05-0.11	1.0-2.9	1.0-6.0	.05	.24			
	38-47	---	---	15-30	1.30-1.50	4.00-14.00	0.16-0.21	1.0-2.9	0.0-3.0	.24	.28			
	47-51	---	---	---	---	---	---	---	---	---	---			
	51-55	---	---	---	---	---	---	---	---	---	---			
66:														
Fluvents-------------	0-9	25-65	20-55	5-20	1.20-1.40	4.00-42.00	0.09-0.23	0.0-2.9	2.0-4.0	.10	.20	3	5	56
	9-27	25-65	20-55	5-20	1.20-1.40	4.00-42.00	0.08-0.21	0.0-2.9	0.5-1.5	.15	.32			
	27-35	30-70	20-50	5-20	1.30-1.50	4.00-42.00	0.08-0.18	0.0-2.9	0.1-0.8	.20	.37			
	35-60	75-94	5-15	1-8	1.40-1.60	141.00-705.00	0.01-0.06	0.0-0.0	0.0-0.5	.02	.15			
Fluvaquents----------	0-8	10-45	30-70	10-35	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	2.0-4.0	.15	.28	5	6	48
	8-24	10-45	30-70	10-35	1.20-1.40	4.00-14.00	0.11-0.21	0.0-2.9	0.5-1.5	.20	.43			
	24-60	10-65	20-65	10-27	1.30-1.50	4.00-42.00	0.05-0.21	0.0-2.9	0.1-0.5	.15	.55			
67:														
Fluvents, high precipitation-------	0-9	25-65	20-55	5-20	1.20-1.40	4.00-42.00	0.09-0.23	0.0-2.9	2.0-4.0	.10	.20	3	5	56
	9-27	25-65	20-55	5-20	1.20-1.40	4.00-42.00	0.08-0.21	0.0-2.9	0.5-1.5	.15	.32			
	27-35	30-70	20-50	5-20	1.30-1.50	4.00-42.00	0.08-0.18	0.0-2.9	0.1-0.8	.20	.37			
	35-60	75-94	5-15	1-8	1.40-1.60	141.00-705.00	0.01-0.06	0.0-0.0	0.0-0.5	.02	.15			
Fluvaquents, high precipitation-------	0-8	10-45	30-70	10-35	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	2.0-4.0	.15	.28	5	6	48
	8-24	10-45	30-70	10-35	1.20-1.40	4.00-14.00	0.11-0.21	0.0-2.9	0.5-1.5	.20	.43			
	24-60	10-65	20-65	10-27	1.30-1.50	4.00-42.00	0.05-0.21	0.0-2.9	0.1-0.5	.15	.55			
68:														
Formader-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-15	---	---	15-20	0.75-0.90	4.00-14.00	0.28-0.45	1.0-2.9	4.0-10	.17	.28			
	15-27	---	---	18-30	1.00-1.20	4.00-14.00	0.10-0.15	3.0-5.9	1.0-4.0	.10	.24			
	27-37	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
68:														
Hemcross-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-4	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-12	.15	.17			
	4-10	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-10	.15	.17			
	10-19	---	---	15-30	0.75-0.90	4.00-14.00	0.30-0.42	1.0-2.9	4.0-8.0	.15	.17			
	19-26	---	---	18-35	0.75-0.90	4.00-14.00	0.35-0.45	3.0-5.9	1.0-4.0	.24	.28			
	26-38	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-3.0	.28	.32			
	38-48	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
	48-68	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
69:														
Formader-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-15	---	---	15-20	0.75-0.90	4.00-14.00	0.28-0.45	1.0-2.9	4.0-10	.17	.28			
	15-27	---	---	18-30	1.00-1.20	4.00-14.00	0.10-0.15	3.0-5.9	1.0-4.0	.10	.24			
	27-37	---	---	---	---	---	---	---	---	---	---			
Hemcross-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-4	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-12	.15	.17			
	4-10	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-10	.15	.17			
	10-19	---	---	15-30	0.75-0.90	4.00-14.00	0.30-0.42	1.0-2.9	4.0-8.0	.15	.17			
	19-26	---	---	18-35	0.75-0.90	4.00-14.00	0.35-0.45	3.0-5.9	1.0-4.0	.24	.28			
	26-38	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-3.0	.28	.32			
	38-48	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
	48-68	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
70:														
Formader-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-15	---	---	15-20	0.75-0.90	4.00-14.00	0.28-0.45	1.0-2.9	4.0-10	.17	.28			
	15-27	---	---	18-30	1.00-1.20	4.00-14.00	0.10-0.15	3.0-5.9	1.0-4.0	.10	.24			
	27-37	---	---	---	---	---	---	---	---	---	---			
Klistan--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-17	---	---	12-18	0.75-0.90	14.00-42.00	0.19-0.27	1.0-2.9	4.0-12	.05	.24			
	17-25	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	4.0-8.0	.05	.28			
	25-43	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	2.0-6.0	.05	.24			
	43-56	---	---	18-27	0.80-1.00	4.00-14.00	0.12-0.27	1.0-2.9	0.0-3.0	.05	.32			
	56-60	---	---	---	---	---	---	---	---	---	---			
Hemcross-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-4	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-12	.15	.17			
	4-10	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-10	.15	.17			
	10-19	---	---	15-30	0.75-0.90	4.00-14.00	0.30-0.42	1.0-2.9	4.0-8.0	.15	.17			
	19-26	---	---	18-35	0.75-0.90	4.00-14.00	0.35-0.45	3.0-5.9	1.0-4.0	.24	.28			
	26-38	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-3.0	.28	.32			
	38-48	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
	48-68	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
71:														
Gelderman------------	0-5	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.18-0.26	2.0-4.0	2.5-8.0	.20	.20	3	6	48
	5-10	10-20	35-50	35-45	1.20-1.30	4.00-14.00	0.13-0.25	2.0-4.0	1.5-5.5	.20	.20			
	10-24	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.10-0.17	3.0-6.0	0.5-2.0	.20	.20			
	24-30	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.10-0.16	3.0-6.0	0.2-1.4	.15	.20			
	30-40	---	---	---	---	---	---	---	---	---	---			
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			
72:														
Goodin---------------	0-3	5-15	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.26	1.5-2.9	3.5-7.0	.20	.20	3	6	48
	3-9	5-15	45-65	27-40	1.20-1.40	1.40-14.00	0.20-0.23	3.0-5.9	2.0-5.0	.20	.20			
	9-16	5-15	35-60	35-50	1.40-1.50	1.40-4.00	0.14-0.22	3.0-8.9	1.0-3.0	.24	.24			
	16-21	5-15	35-60	35-50	1.40-1.50	1.40-4.00	0.14-0.21	3.0-8.9	0.8-2.0	.28	.28			
	21-29	5-15	30-65	30-55	1.40-1.50	1.40-4.00	0.12-0.20	3.0-8.9	0.5-1.5	.20	.24			
	29-39	---	---	---	---	---	---	---	---	---	---			
Dupee----------------	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			
Chehulpum------------	0-4	15-25	50-65	18-27	1.10-1.30	4.00-14.00	0.17-0.24	0.0-2.9	2.0-6.0	.20	.24	2	6	48
	4-12	18-35	35-60	20-30	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	1.0-4.0	.20	.32			
	12-22	---	---	---	---	---	---	---	---	---	---			
73:														
Goodin---------------	0-3	5-15	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.26	1.5-2.9	3.5-7.0	.20	.20	3	6	48
	3-9	5-15	45-65	27-40	1.20-1.40	1.40-14.00	0.20-0.23	3.0-5.9	2.0-5.0	.20	.20			
	9-16	5-15	35-60	35-50	1.40-1.50	1.40-4.00	0.14-0.22	3.0-8.9	1.0-3.0	.24	.24			
	16-21	5-15	35-60	35-50	1.40-1.50	1.40-4.00	0.14-0.21	3.0-8.9	0.8-2.0	.28	.28			
	21-29	5-15	30-65	30-55	1.40-1.50	1.40-4.00	0.12-0.20	3.0-8.9	0.5-1.5	.20	.24			
	29-39	---	---	---	---	---	---	---	---	---	---			
Chehulpum------------	0-4	15-25	50-65	18-27	1.10-1.30	4.00-14.00	0.17-0.24	0.0-2.9	2.0-6.0	.20	.24	2	6	48
	4-12	18-35	35-60	20-30	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	1.0-4.0	.20	.32			
	12-22	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
73:														
Dupee----------------	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			
74:														
Grassmountain--------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-7	---	---	12-20	0.80-1.00	14.00-42.00	0.28-0.38	1.0-2.9	5.0-12	.20	.37			
	7-15	---	---	18-25	0.80-1.00	4.00-14.00	0.30-0.40	3.0-5.9	4.0-10	.24	.32			
	15-29	---	---	20-30	1.10-1.40	4.00-14.00	0.14-0.18	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-30	1.20-1.40	4.00-14.00	0.16-0.20	3.0-5.9	0.0-3.0	.24	.32			
	44-69	---	---	20-30	1.30-1.50	4.00-14.00	0.16-0.20	3.0-5.9	0.0-1.0	.28	.37			
	69-79	---	---	---	---	---	---	---	---	---	---			
Fiverivers-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-4	---	---	12-20	0.80-1.00	14.00-42.00	0.18-0.27	1.0-2.9	5.0-12	.05	.20			
	4-9	---	---	18-25	0.80-1.00	4.00-14.00	0.21-0.34	3.0-5.9	4.0-10	.10	.24			
	9-15	---	---	20-30	1.10-1.40	4.00-14.00	0.11-0.15	3.0-5.9	2.0-6.0	.10	.20			
	15-25	---	---	20-30	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	1.0-4.0	.17	.24			
	25-36	---	---	20-30	1.30-1.50	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.17	.24			
	36-46	---	---	---	---	---	---	---	---	---	---			
Chintimini-----------	0-4	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	8	0
	4-9	---	---	12-20	0.80-1.00	4.00-14.00	0.15-0.25	1.0-2.9	5.0-12	.05	.28			
	9-20	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.20	1.0-2.9	4.0-10	.05	.24			
	20-38	---	---	15-30	1.10-1.40	4.00-14.00	0.05-0.11	1.0-2.9	1.0-6.0	.05	.24			
	38-47	---	---	15-30	1.30-1.50	4.00-14.00	0.16-0.21	1.0-2.9	0.0-3.0	.24	.28			
	47-51	---	---	---	---	---	---	---	---	---	---			
	51-55	---	---	---	---	---	---	---	---	---	---			
75:														
Harslow--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-6	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-10	.02	.17			
	6-11	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-8.0	.05	.20			
	11-17	---	---	15-25	0.75-0.90	4.00-14.00	0.15-0.25	1.0-2.9	2.0-6.0	.05	.28			
	17-26	---	---	20-27	0.75-0.90	4.00-14.00	0.10-0.18	1.0-2.9	0.0-3.0	.05	.32			
	26-34	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.18	1.0-2.9	0.0-2.0	.05	.37			
	34-38	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
75:														
Kilchis	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	7	38
	1-9	---	---	15-20	0.80-1.00	14.00-42.00	0.23-0.35	1.0-2.9	4.0-10	.10	.20			
	9-14	---	---	18-27	1.00-1.20	14.00-42.00	0.05-0.12	1.0-2.9	3.0-6.0	.05	.24			
	14-17	---	---	15-27	1.20-1.40	14.00-42.00	0.04-0.11	1.0-2.9	1.0-4.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
76:														
Harslow	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-6	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-10	.02	.17			
	6-11	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-8.0	.05	.20			
	11-17	---	---	15-25	0.75-0.90	4.00-14.00	0.15-0.25	1.0-2.9	2.0-6.0	.05	.28			
	17-26	---	---	20-27	0.75-0.90	4.00-14.00	0.10-0.18	1.0-2.9	0.0-3.0	.05	.32			
	26-34	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.18	1.0-2.9	0.0-2.0	.05	.37			
	34-38	---	---	---	---	---	---	---	---	---	---			
Klistan	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-17	---	---	12-18	0.75-0.90	14.00-42.00	0.19-0.27	1.0-2.9	4.0-12	.05	.24			
	17-25	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	4.0-8.0	.05	.28			
	25-43	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	2.0-6.0	.05	.24			
	43-56	---	---	18-27	0.80-1.00	4.00-14.00	0.12-0.27	1.0-2.9	0.0-3.0	.05	.32			
	56-60	---	---	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
77:														
Hazelair	0-7	5-20	40-65	27-40	1.15-1.50	4.00-14.00	0.20-0.23	0.0-2.9	3.0-4.5	.28	.28	3	6	48
	7-11	5-20	40-65	27-40	1.20-1.50	4.00-14.00	0.19-0.23	0.0-5.9	1.5-3.5	.37	.37			
	11-18	5-15	35-60	35-50	1.05-1.20	1.40-4.00	0.14-0.21	6.0-8.9	0.8-2.0	.32	.32			
	18-24	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.12-0.17	12.0-18.0	0.5-1.0	.24	.15			
	24-30	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.12-0.17	12.0-18.0	0.2-0.5	.24	.15			
	30-40	---	---	---	---	---	---	---	---	---	---			
78:														
Hazelair	0-7	5-20	40-65	27-40	1.15-1.50	4.00-14.00	0.20-0.23	0.0-2.9	3.0-4.5	.28	.28	3	6	48
	7-11	5-20	40-65	27-40	1.20-1.50	4.00-14.00	0.19-0.23	0.0-5.9	1.5-3.5	.37	.37			
	11-18	5-15	35-60	35-50	1.05-1.20	1.40-4.00	0.14-0.21	6.0-8.9	0.8-2.0	.32	.32			
	18-24	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.12-0.17	12.0-18.0	0.5-1.0	.24	.15			
	24-30	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.12-0.17	12.0-18.0	0.2-0.5	.24	.15			
	30-40	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
79:														
Hazelair-------------	0-7	5-20	40-65	27-40	1.15-1.50	4.00-14.00	0.20-0.23	0.0-2.9	3.0-4.5	.28	.28	3	6	48
	7-11	5-20	40-65	27-40	1.20-1.50	4.00-14.00	0.19-0.23	0.0-5.9	1.5-3.5	.37	.37			
	11-18	5-15	35-60	35-50	1.05-1.20	1.40-4.00	0.14-0.21	6.0-8.9	0.8-2.0	.32	.32			
	18-24	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.12-0.17	12.0-18.0	0.5-1.0	.24	.15			
	24-30	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.12-0.17	12.0-18.0	0.2-0.5	.24	.15			
	30-40	---	---	---	---	---	---	---	---	---	---			
80:														
Hazelair-------------	0-4	5-20	40-65	27-40	1.15-1.50	4.00-14.00	0.20-0.23	0.0-2.9	3.0-4.5	.20	.28	3	6	48
	4-11	5-20	40-65	27-40	1.20-1.50	4.00-14.00	0.19-0.23	3.0-5.9	1.5-3.5	.24	.32			
	11-15	5-15	35-60	35-50	1.05-1.20	1.40-4.00	0.14-0.21	3.0-8.9	0.8-2.0	.24	.32			
	15-21	2-10	20-38	60-70	1.00-1.20	0.01-0.42	0.12-0.17	9.0-17.0	0.5-1.0	.15	.24			
	21-36	2-10	20-38	60-70	1.00-1.20	0.01-0.42	0.12-0.17	9.0-17.0	0.2-0.5	.15	.24			
	36-46	---	---	---	---	---	---	---	---	---	---			
81:														
Helmick--------------	0-5	5-20	55-75	18-27	1.15-1.50	4.00-14.00	0.20-0.23	0.0-2.9	3.0-4.5	.28	.28	5	6	48
	5-10	5-15	45-68	27-35	1.20-1.50	4.00-14.00	0.19-0.23	0.0-5.9	1.5-3.5	.37	.37			
	10-16	5-15	40-65	30-45	1.05-1.20	1.40-4.00	0.14-0.21	3.0-5.9	0.8-2.0	.32	.32			
	16-22	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.13-0.16	12.0-18.0	0.5-1.0	.24	.24			
	22-28	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.13-0.16	12.0-18.0	0.2-0.5	.24	.24			
	28-36	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.13-0.16	12.0-18.0	0.1-0.4	.24	.24			
	36-50	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.10-0.16	12.0-18.0	0.0-0.1	.24	.15			
	50-62	2-10	20-37	60-70	1.00-1.20	0.01-0.42	0.10-0.16	12.0-18.0	0.0-0.1	.24	.15			
82:														
Helvetia-------------	0-5	5-20	55-80	15-27	1.15-1.50	4.00-14.00	0.20-0.22	0.0-2.9	3.5-6.5	.24	.24	5	6	48
	5-10	5-20	45-70	25-35	1.20-1.50	4.00-14.00	0.19-0.21	0.0-2.9	1.0-4.0	.32	.32			
	10-16	5-15	40-61	35-45	1.30-1.55	1.40-4.00	0.15-0.21	3.0-5.9	1.0-3.0	.24	.24			
	16-28	3-10	40-63	35-50	1.35-1.55	1.40-4.00	0.15-0.21	6.0-8.9	0.3-1.0	.28	.28			
	28-48	3-10	40-63	35-50	1.35-1.55	1.40-4.00	0.15-0.21	6.0-8.9	0.2-0.7	.32	.32			
	48-60	5-20	40-70	25-45	1.30-1.50	1.40-14.00	0.15-0.21	2.0-5.9	0.1-0.2	.49	.49			
83:														
Hemcross-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-4	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-12	.15	.17			
	4-10	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-10	.15	.17			
	10-19	---	---	15-30	0.75-0.90	4.00-14.00	0.30-0.42	1.0-2.9	4.0-8.0	.15	.17			
	19-26	---	---	18-35	0.75-0.90	4.00-14.00	0.35-0.45	3.0-5.9	1.0-4.0	.24	.28			
	26-38	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-3.0	.28	.32			
	38-48	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
	48-68	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
83:														
Klistan--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-17	---	---	12-18	0.75-0.90	14.00-42.00	0.19-0.27	1.0-2.9	4.0-12	.05	.24			
	17-25	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	4.0-8.0	.05	.28			
	25-43	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	2.0-6.0	.05	.24			
	43-56	---	---	18-27	0.80-1.00	4.00-14.00	0.12-0.27	1.0-2.9	0.0-3.0	.05	.32			
	56-60	---	---	---	---	---	---	---	---	---	---			
84:														
Hemcross-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-4	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-12	.15	.17			
	4-10	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-10	.15	.17			
	10-19	---	---	15-30	0.75-0.90	4.00-14.00	0.30-0.42	1.0-2.9	4.0-8.0	.15	.17			
	19-26	---	---	18-35	0.75-0.90	4.00-14.00	0.35-0.45	3.0-5.9	1.0-4.0	.24	.28			
	26-38	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-3.0	.28	.32			
	38-48	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
	48-68	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
Klistan--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-17	---	---	12-18	0.75-0.90	14.00-42.00	0.19-0.27	1.0-2.9	4.0-12	.05	.24			
	17-25	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	4.0-8.0	.05	.28			
	25-43	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	2.0-6.0	.05	.24			
	43-56	---	---	18-27	0.80-1.00	4.00-14.00	0.12-0.27	1.0-2.9	0.0-3.0	.05	.32			
	56-60	---	---	---	---	---	---	---	---	---	---			
85:														
Holcomb--------------	0-6	2-15	60-75	20-25	1.10-1.30	4.00-14.00	0.20-0.24	0.0-2.9	3.0-5.0	.28	.32	4	6	48
	6-18	2-15	55-75	20-30	1.10-1.30	4.00-14.00	0.20-0.23	0.0-5.9	1.0-3.0	.43	.43			
	18-24	2-10	55-75	20-30	1.30-1.50	4.00-14.00	0.19-0.22	0.0-5.9	0.5-1.0	.49	.49			
	24-34	2-11	35-55	40-50	1.25-1.45	0.01-0.42	0.14-0.17	9.0-13.0	0.3-0.6	.28	.28			
	34-50	2-11	35-55	40-50	1.25-1.45	0.01-0.42	0.12-0.17	9.0-12.0	0.1-0.3	.24	.37			
	50-60	5-25	40-70	25-40	1.30-1.50	1.40-14.00	0.16-0.21	1.0-5.9	0.1-0.2	.37	.55			
86:														
Honeygrove-----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-6	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	1.0-2.9	5.0-10	.15	.17			
	6-17	---	---	35-50	1.00-1.20	1.40-4.00	0.17-0.21	3.0-5.9	3.0-7.0	.24	.24			
	17-31	---	---	45-60	1.10-1.30	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.20	.24			
	31-43	---	---	45-60	1.10-1.30	1.40-4.00	0.13-0.17	3.0-5.9	0.0-3.0	.24	.24			
	43-56	---	---	45-60	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	0.0-2.0	.28	.28			
	56-75	---	---	45-60	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	0.0-1.0	.24	.24			
	75-85	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
86:														
Peavine, sedimentary bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-4	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	1.0-2.9	5.0-10	.20	.20			
	4-17	---	---	30-50	1.00-1.20	1.40-4.00	0.19-0.21	3.0-5.9	3.0-7.0	.20	.20			
	17-23	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	1.0-4.0	.24	.24			
	23-31	---	---	40-60	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-3.0	.24	.24			
	31-36	---	---	40-60	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-2.0	.28	.28			
	36-46	---	---	---	---	---	---	---	---	---	---			
87:														
Honeygrove-----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-6	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	1.0-2.9	5.0-10	.15	.17			
	6-17	---	---	35-50	1.00-1.20	1.40-4.00	0.17-0.21	3.0-5.9	3.0-7.0	.24	.24			
	17-31	---	---	45-60	1.10-1.30	1.40-4.00	0.13-0.17	3.0-5.9	1.0-4.0	.20	.24			
	31-43	---	---	45-60	1.10-1.30	1.40-4.00	0.13-0.17	3.0-5.9	0.0-3.0	.24	.24			
	43-56	---	---	45-60	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	0.0-2.0	.28	.28			
	56-75	---	---	45-60	1.20-1.40	1.40-4.00	0.13-0.17	3.0-5.9	0.0-1.0	.24	.24			
	75-85	---	---	---	---	---	---	---	---	---	---			
Peavine, sedimentary bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-4	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	1.0-2.9	5.0-10	.20	.20			
	4-17	---	---	30-50	1.00-1.20	1.40-4.00	0.19-0.21	3.0-5.9	3.0-7.0	.20	.20			
	17-23	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	1.0-4.0	.24	.24			
	23-31	---	---	40-60	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-3.0	.24	.24			
	31-36	---	---	40-60	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-2.0	.28	.28			
	36-46	---	---	---	---	---	---	---	---	---	---			
88:														
Honeygrove, basalt bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-9	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	1.0-2.9	5.0-10	.17	.17			
	9-15	---	---	35-60	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	3.0-7.0	.15	.17			
	15-22	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	1.0-4.0	.20	.20			
	22-37	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-3.0	.20	.20			
	37-50	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-2.0	.20	.20			
	50-67	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.20	.20			
Peavine, basalt bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-6	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	1.0-2.9	5.0-10	.20	.20			
	6-13	---	---	27-50	1.00-1.20	1.40-4.00	0.19-0.21	3.0-5.9	3.0-7.0	.17	.20			
	13-32	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	1.0-4.0	.24	.24			
	32-37	---	---	40-60	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-2.0	.24	.24			
	37-47	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
89:														
Honeygrove, basalt bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-9	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	1.0-2.9	5.0-10	.17	.17			
	9-15	---	---	35-60	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	3.0-7.0	.15	.17			
	15-22	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	1.0-4.0	.20	.20			
	22-37	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-3.0	.20	.20			
	37-50	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-2.0	.20	.20			
	50-67	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.20	.20			
Peavine, basalt bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-6	---	---	27-35	1.00-1.20	4.00-14.00	0.19-0.21	1.0-2.9	5.0-10	.20	.20			
	6-13	---	---	27-50	1.00-1.20	1.40-4.00	0.19-0.21	3.0-5.9	3.0-7.0	.17	.20			
	13-32	---	---	40-60	1.10-1.30	1.40-4.00	0.15-0.17	3.0-5.9	1.0-4.0	.24	.24			
	32-37	---	---	40-60	1.20-1.40	1.40-4.00	0.15-0.17	3.0-5.9	0.0-2.0	.24	.24			
	37-47	---	---	---	---	---	---	---	---	---	---			
90:														
Honeygrove, basalt bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-9	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	1.0-2.9	5.0-10	.17	.17			
	9-15	---	---	35-60	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	3.0-7.0	.15	.17			
	15-22	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	1.0-4.0	.20	.20			
	22-37	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-3.0	.20	.20			
	37-50	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-2.0	.20	.20			
	50-67	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.20	.20			
Shivigny-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	8	0
	1-7	---	---	27-35	1.00-1.20	4.00-14.00	0.07-0.14	1.0-2.9	5.0-10	.05	.20			
	7-13	---	---	30-50	1.00-1.20	1.40-4.00	0.04-0.14	3.0-5.9	3.0-7.0	.05	.20			
	13-23	---	---	40-55	1.10-1.30	1.40-4.00	0.03-0.11	3.0-5.9	1.0-4.0	.05	.24			
	23-34	---	---	40-55	1.10-1.30	1.40-4.00	0.03-0.11	3.0-5.9	0.0-3.0	.02	.24			
	34-43	---	---	40-55	1.20-1.40	1.40-4.00	0.03-0.11	3.0-5.9	0.0-2.0	.02	.24			
	43-68	---	---	40-55	1.20-1.40	1.40-4.00	0.03-0.11	3.0-5.9	0.0-1.0	.05	.24			
	68-78	---	---	---	---	---	---	---	---	---	---			
91:														
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
92:														
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			
93:														
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			
94:														
Jory, sedimentary bedrock-------------	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			
95:														
Jory, sedimentary bedrock-------------	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			
96:														
Jory, sedimentary bedrock-------------	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
97:														
Jory, sedimentary bedrock-------------	0-7	5-20	50-60	27-35	1.20-1.30	4.00-14.00	0.22-0.26	2.0-4.0	2.5-8.0	.24	.24	5	6	48
	7-15	5-20	50-60	35-40	1.20-1.30	4.00-14.00	0.21-0.24	2.0-4.0	1.5-5.5	.24	.24			
	15-23	5-15	40-60	35-45	1.25-1.40	1.40-14.00	0.14-0.23	2.0-6.0	1.5-4.5	.24	.24			
	23-35	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.24	.24			
	35-51	5-15	35-55	40-55	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.24	.24			
	51-60	5-15	35-55	45-55	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.0	0.2-1.0	.24	.28			
Dupee----------------	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			
98:														
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			
Gelderman------------	0-5	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.18-0.26	2.0-4.0	2.5-8.0	.20	.20	3	6	48
	5-10	10-20	35-50	35-45	1.20-1.30	4.00-14.00	0.13-0.25	2.0-4.0	1.5-5.5	.20	.20			
	10-24	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.10-0.17	3.0-6.0	0.5-2.0	.20	.20			
	24-30	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.10-0.16	3.0-6.0	0.2-1.4	.15	.20			
	30-40	---	---	---	---	---	---	---	---	---	---			
99:														
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			
Nekia----------------	0-9	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.19-0.24	2.0-4.0	2.5-8.0	.20	.20	2	6	48
	9-18	10-20	35-50	35-50	1.20-1.30	4.00-14.00	0.19-0.24	2.0-4.0	1.5-5.5	.20	.20			
	18-24	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.09-0.18	3.0-6.0	0.5-2.0	.20	.20			
	24-36	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.08-0.17	3.0-6.0	0.2-1.4	.15	.20			
	36-40	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
100:														
Jory, basalt bedrock	0-6	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.20-0.26	2.0-4.0	2.5-8.0	.20	.20	5	6	48
	6-16	10-20	35-50	35-50	1.20-1.30	1.40-14.00	0.15-0.25	2.0-4.0	1.5-5.5	.15	.20			
	16-19	10-20	35-50	35-55	1.25-1.40	1.40-4.00	0.14-0.19	2.0-6.0	1.5-4.5	.20	.20			
	19-29	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.18	3.0-6.0	0.5-2.5	.20	.20			
	29-48	8-20	30-45	40-60	1.30-1.45	1.40-4.00	0.13-0.17	3.0-6.0	0.5-1.5	.20	.20			
	48-100	5-20	30-45	45-65	1.20-1.35	1.40-4.00	0.13-0.17	3.0-6.5	0.2-1.0	.15	.20			
Nekia----------------	0-9	10-20	40-55	27-40	1.20-1.30	4.00-14.00	0.19-0.24	2.0-4.0	2.5-8.0	.20	.20	2	6	48
	9-18	10-20	35-50	35-50	1.20-1.30	4.00-14.00	0.19-0.24	2.0-4.0	1.5-5.5	.20	.20			
	18-24	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.09-0.18	3.0-6.0	0.5-2.0	.20	.20			
	24-36	8-20	30-45	40-50	1.30-1.45	1.40-4.00	0.08-0.17	3.0-6.0	0.2-1.4	.15	.20			
	36-40	---	---	---	---	---	---	---	---	---	---			
101:														
Kirkendall-----------	0-8	---	---	15-25	1.00-1.20	4.00-14.00	0.19-0.21	0.0-2.9	5.0-10	.37	.37	5	5	56
	8-17	---	---	15-25	1.00-1.20	4.00-14.00	0.19-0.21	3.0-5.9	2.0-5.0	.32	.32			
	17-36	---	---	20-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	1.0-4.0	.43	.43			
	36-47	---	---	20-35	1.20-1.40	1.40-4.00	0.19-0.21	3.0-5.9	1.0-4.0	.49	.49			
	47-68	---	---	15-30	1.30-1.50	1.40-4.00	0.16-0.18	3.0-5.9	0.0-2.0	.49	.49			
Nekoma---------------	0-5	---	---	5-20	1.00-1.20	14.00-42.00	0.19-0.21	0.0-2.9	4.0-8.0	.28	.28	5	5	56
	5-14	---	---	5-20	1.00-1.20	14.00-42.00	0.19-0.21	0.0-2.9	4.0-8.0	.32	.32			
	14-26	---	---	5-15	1.10-1.30	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.32	.32			
	26-48	---	---	5-15	1.20-1.40	14.00-42.00	0.13-0.15	0.0-2.9	0.0-2.0	.32	.32			
	48-60	---	---	5-15	1.20-1.40	14.00-42.00	0.09-0.11	0.0-2.9	0.0-1.0	.37	.37			
Quosatana------------	0-14	---	---	20-27	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	4.0-8.0	.37	.37	5	6	48
	14-39	---	---	25-35	1.20-1.40	1.40-4.00	0.19-0.21	3.0-5.9	1.0-4.0	.37	.37			
	39-48	---	---	25-35	1.30-1.50	1.40-4.00	0.19-0.21	3.0-5.9	0.0-3.0	.43	.43			
	48-65	---	---	25-45	1.30-1.50	0.42-1.40	0.16-0.18	3.0-5.9	0.0-1.0	.49	.49			
102:														
Klistan--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-17	---	---	12-18	0.75-0.90	14.00-42.00	0.19-0.27	1.0-2.9	4.0-12	.05	.24			
	17-25	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	4.0-8.0	.05	.28			
	25-43	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	2.0-6.0	.05	.24			
	43-56	---	---	18-27	0.80-1.00	4.00-14.00	0.12-0.27	1.0-2.9	0.0-3.0	.05	.32			
	56-60	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
102:														
Harslow--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-6	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-10	.02	.17			
	6-11	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-8.0	.05	.20			
	11-17	---	---	15-25	0.75-0.90	4.00-14.00	0.15-0.25	1.0-2.9	2.0-6.0	.05	.28			
	17-26	---	---	20-27	0.75-0.90	4.00-14.00	0.10-0.18	1.0-2.9	0.0-3.0	.05	.32			
	26-34	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.18	1.0-2.9	0.0-2.0	.05	.37			
	34-38	---	---	---	---	---	---	---	---	---	---			
103:														
Klistan--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-17	---	---	12-18	0.75-0.90	14.00-42.00	0.19-0.27	1.0-2.9	4.0-12	.05	.24			
	17-25	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	4.0-8.0	.05	.28			
	25-43	---	---	18-27	0.75-0.90	4.00-14.00	0.12-0.27	1.0-2.9	2.0-6.0	.05	.24			
	43-56	---	---	18-27	0.80-1.00	4.00-14.00	0.12-0.27	1.0-2.9	0.0-3.0	.05	.32			
	56-60	---	---	---	---	---	---	---	---	---	---			
Harslow--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-6	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-10	.02	.17			
	6-11	---	---	15-25	0.75-0.90	14.00-42.00	0.15-0.25	1.0-2.9	4.0-8.0	.05	.20			
	11-17	---	---	15-25	0.75-0.90	4.00-14.00	0.15-0.25	1.0-2.9	2.0-6.0	.05	.28			
	17-26	---	---	20-27	0.75-0.90	4.00-14.00	0.10-0.18	1.0-2.9	0.0-3.0	.05	.32			
	26-34	---	---	15-25	0.80-1.00	4.00-14.00	0.10-0.18	1.0-2.9	0.0-2.0	.05	.37			
	34-38	---	---	---	---	---	---	---	---	---	---			
Hemcross-------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-4	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-12	.15	.17			
	4-10	---	---	15-25	0.75-0.90	14.00-42.00	0.30-0.42	1.0-2.9	4.0-10	.15	.17			
	10-19	---	---	15-30	0.75-0.90	4.00-14.00	0.30-0.42	1.0-2.9	4.0-8.0	.15	.17			
	19-26	---	---	18-35	0.75-0.90	4.00-14.00	0.35-0.45	3.0-5.9	1.0-4.0	.24	.28			
	26-38	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-3.0	.28	.32			
	38-48	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
	48-68	---	---	18-35	0.80-1.00	4.00-14.00	0.35-0.45	3.0-5.9	0.0-2.0	.24	.28			
104:														
Laderly--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-15	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.28	1.0-2.9	8.0-12	.10	.28			
	15-29	---	---	15-27	0.75-0.90	4.00-14.00	0.10-0.28	1.0-2.9	4.0-8.0	.05	.28			
	29-37	---	---	15-27	0.80-1.00	4.00-14.00	0.10-0.25	1.0-2.9	1.0-4.0	.02	.28			
	37-41	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
104:														
Murtip---------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-19	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	8.0-12	.20	.28			
	19-31	---	---	18-30	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	4.0-8.0	.24	.28			
	31-45	---	---	18-30	0.75-0.90	4.00-14.00	0.25-0.45	1.0-2.9	1.0-4.0	.24	.24			
	45-56	---	---	18-30	0.80-1.00	4.00-14.00	0.25-0.35	1.0-2.9	0.0-2.0	.20	.32			
	56-66	---	---	---	---	---	---	---	---	---	---			
Giveout--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-16	---	---	12-20	0.75-0.90	14.00-42.00	0.27-0.36	1.0-2.9	8.0-12	.10	.20			
	16-28	---	---	18-30	0.75-0.90	4.00-14.00	0.27-0.40	1.0-2.9	4.0-8.0	.15	.28			
	28-36	---	---	18-30	0.80-1.00	4.00-14.00	0.27-0.40	1.0-2.9	1.0-4.0	.20	.28			
	36-46	---	---	---	---	---	---	---	---	---	---			
105:														
Linslaw--------------	0-5	35-45	30-45	15-25	1.15-1.30	4.00-14.00	0.17-0.20	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	5-16	35-45	30-45	15-25	1.20-1.35	4.00-14.00	0.16-0.20	0.0-2.9	1.0-3.0	.32	.37			
	16-28	30-40	20-35	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.5-1.0	.24	.24			
	28-42	30-40	20-35	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.3-0.7	.24	.24			
	42-56	10-25	20-40	50-55	1.30-1.50	0.42-1.40	0.13-0.16	6.0-8.9	0.2-0.4	.24	.28			
	56-60	50-65	20-30	10-25	1.50-1.60	4.00-42.00	0.10-0.16	0.0-2.9	0.1-0.3	.37	.43			
106:														
Linslaw--------------	0-5	35-45	30-45	15-25	1.15-1.30	4.00-14.00	0.17-0.20	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	5-16	35-45	30-45	15-25	1.20-1.35	4.00-14.00	0.16-0.20	0.0-2.9	1.0-3.0	.32	.37			
	16-28	30-40	20-35	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.5-1.0	.24	.24			
	28-42	30-40	20-35	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.3-0.7	.24	.24			
	42-56	10-25	20-40	50-55	1.30-1.50	0.42-1.40	0.13-0.16	6.0-8.9	0.2-0.4	.24	.28			
	56-60	50-65	20-30	10-25	1.50-1.60	4.00-42.00	0.10-0.16	0.0-2.9	0.1-0.3	.37	.43			
107:														
Lurnick--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-8	---	---	18-25	0.80-1.00	14.00-42.00	0.15-0.27	1.0-2.9	5.0-12	.05	.17			
	8-22	---	---	15-25	1.00-1.20	14.00-42.00	0.04-0.10	1.0-2.9	4.0-8.0	.05	.24			
	22-29	---	---	15-25	1.00-1.20	14.00-42.00	0.02-0.07	1.0-2.9	1.0-4.0	.05	.28			
	29-36	---	---	15-25	1.20-1.40	14.00-42.00	0.02-0.07	1.0-2.9	0.0-3.0	.02	.28			
	36-40	---	---	---	---	---	---	---	---	---	---			
	40-44	---	---	---	---	---	---	---	---	---	---			
Luckiamute-----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	2-6	---	---	12-20	0.80-1.00	14.00-42.00	0.10-0.17	1.0-2.9	5.0-12	.02	.20			
	6-17	---	---	18-30	1.00-1.20	4.00-14.00	0.04-0.09	1.0-2.9	2.0-6.0	.02	.24			
	17-21	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
108:														
Lurnick--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	8	0
	1-8	---	---	18-25	0.80-1.00	14.00-42.00	0.15-0.27	1.0-2.9	5.0-12	.05	.17			
	8-22	---	---	15-25	1.00-1.20	14.00-42.00	0.04-0.10	1.0-2.9	4.0-8.0	.05	.24			
	22-29	---	---	15-25	1.00-1.20	14.00-42.00	0.02-0.07	1.0-2.9	1.0-4.0	.05	.28			
	29-36	---	---	15-25	1.20-1.40	14.00-42.00	0.02-0.07	1.0-2.9	0.0-3.0	.02	.28			
	36-40	---	---	---	---	---	---	---	---	---	---			
	40-44	---	---	---	---	---	---	---	---	---	---			
Luckiamute-----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	2-6	---	---	12-20	0.80-1.00	14.00-42.00	0.10-0.17	1.0-2.9	5.0-12	.02	.20			
	6-17	---	---	18-30	1.00-1.20	4.00-14.00	0.04-0.09	1.0-2.9	2.0-6.0	.02	.24			
	17-21	---	---	---	---	---	---	---	---	---	---			
Maryspeak------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	2-4	---	---	10-15	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-10	.05	.15			
	4-9	---	---	10-15	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	4.0-8.0	.05	.15			
	9-13	---	---	5-12	1.00-1.20	14.00-42.00	0.05-0.08	1.0-2.9	1.0-4.0	.10	.28			
	13-34	---	---	5-12	1.20-1.40	14.00-42.00	0.04-0.07	1.0-2.9	0.0-3.0	.05	.24			
	34-59	---	---	5-10	1.20-1.40	14.00-42.00	0.03-0.07	1.0-2.9	0.0-1.0	.10	.28			
	59-73	---	---	5-15	1.30-1.50	14.00-42.00	0.04-0.08	1.0-2.9	0.0-1.0	.10	.28			
109:														
MacDunn--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-7	10-20	45-63	27-35	1.30-1.50	4.00-14.00	0.14-0.21	0.0-2.9	4.0-6.0	.10	.20			
	7-15	10-30	40-60	27-35	1.30-1.45	4.00-14.00	0.13-0.20	0.0-2.9	3.0-5.0	.10	.20			
	15-24	10-35	20-50	35-50	1.35-1.45	1.40-4.00	0.03-0.13	3.0-5.9	1.5-4.0	.05	.20			
	24-38	10-35	20-50	35-50	1.35-1.45	1.40-4.00	0.03-0.12	3.0-5.9	1.0-3.0	.05	.20			
	38-51	10-35	20-50	35-50	1.35-1.45	1.40-4.00	0.03-0.11	3.0-5.9	0.5-1.5	.02	.20			
	51-61	---	---	---	---	---	---	---	---	---	---			
Price----------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-8	5-20	45-65	27-35	1.30-1.45	4.00-14.00	0.16-0.24	0.0-2.9	4.0-6.0	.24	.28			
	8-17	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.12-0.21	3.0-5.9	3.0-5.0	.20	.24			
	17-31	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.12-0.21	3.0-5.9	1.5-4.0	.15	.24			
	31-54	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.12-0.20	3.0-5.9	1.0-3.0	.15	.24			
	54-86	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.10-0.18	3.0-5.9	0.5-1.5	.10	.24			
	86-90	---	---	---	---	---	---	---	---	---	---			
Ritner---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	7	38
	1-6	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.14-0.22	0.0-2.9	3.0-7.0	.10	.15			
	6-16	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.10-0.20	3.0-5.9	1.0-4.0	.10	.24			
	16-25	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.8-3.0	.10	.24			
	25-39	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.5-2.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
110:														
Malabon--------------	0-7	10-20	50-60	27-35	1.10-1.30	4.00-14.00	0.19-0.24	1.0-5.9	3.0-6.0	.24	.24	5	6	48
	7-12	10-20	45-55	35-45	1.20-1.40	4.00-14.00	0.15-0.23	3.0-5.9	2.0-4.0	.20	.20			
	12-19	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.22	3.0-5.9	1.0-3.0	.24	.28			
	19-29	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	29-42	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.2-0.7	.32	.37			
	42-60	35-55	25-50	15-30	1.30-1.50	4.00-42.00	0.12-0.21	0.0-5.9	0.1-0.3	.43	.49			
111:														
Malabon, rarely flooded-------------	0-6	10-20	50-63	27-35	1.10-1.30	4.00-14.00	0.19-0.24	1.0-5.9	3.0-6.0	.24	.24	5	6	48
	6-12	10-20	45-55	35-45	1.20-1.40	4.00-14.00	0.15-0.23	3.0-5.9	2.0-4.0	.20	.20			
	12-18	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.22	3.0-5.9	1.0-3.0	.24	.28			
	18-34	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	34-47	10-20	40-55	35-45	1.30-1.50	1.40-4.00	0.14-0.21	3.0-5.9	0.2-0.7	.32	.37			
	47-58	10-20	40-60	30-45	1.30-1.50	1.40-14.00	0.14-0.21	3.0-5.9	0.1-0.3	.37	.43			
	58-63	30-65	20-50	15-30	1.30-1.50	4.00-42.00	0.12-0.21	0.0-5.9	0.1-0.3	.28	.37			
112:														
Maryspeak------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	2-4	---	---	10-15	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-10	.05	.15			
	4-9	---	---	10-15	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	4.0-8.0	.05	.15			
	9-13	---	---	5-12	1.00-1.20	14.00-42.00	0.05-0.08	1.0-2.9	1.0-4.0	.10	.28			
	13-34	---	---	5-12	1.20-1.40	14.00-42.00	0.04-0.07	1.0-2.9	0.0-3.0	.05	.24			
	34-59	---	---	5-10	1.20-1.40	14.00-42.00	0.03-0.07	1.0-2.9	0.0-1.0	.10	.28			
	59-73	---	---	5-15	1.30-1.50	14.00-42.00	0.04-0.08	1.0-2.9	0.0-1.0	.10	.28			
113:														
McAlpin--------------	0-5	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.23	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	5-8	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.5-4.0	.15	.24			
	8-14	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.0-3.5	.15	.24			
	14-23	10-20	30-55	30-50	1.20-1.40	1.40-14.00	0.13-0.22	3.0-5.9	1.0-2.5	.20	.28			
	23-37	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.5-1.5	.20	.28			
	37-51	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.3-0.5	.20	.28			
	51-65	10-25	30-50	40-50	1.20-1.40	1.40-4.00	0.07-0.17	6.0-8.9	0.1-0.3	.10	.32			
114:														
McAlpin--------------	0-5	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.23	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	5-8	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.5-4.0	.15	.24			
	8-14	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.0-3.5	.15	.24			
	14-23	10-20	30-55	30-50	1.20-1.40	1.40-14.00	0.13-0.22	3.0-5.9	1.0-2.5	.20	.28			
	23-37	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.5-1.5	.20	.28			
	37-51	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.3-0.5	.20	.28			
	51-65	10-25	30-50	40-50	1.20-1.40	1.40-4.00	0.07-0.17	6.0-8.9	0.1-0.3	.10	.32			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
115:														
McAlpin, high precipitation-------	0-5	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.23	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	5-8	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.5-4.0	.15	.24			
	8-14	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.0-3.5	.15	.24			
	14-23	10-20	30-55	30-50	1.20-1.40	1.40-14.00	0.13-0.22	3.0-5.9	1.0-2.5	.20	.28			
	23-37	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.5-1.5	.20	.28			
	37-51	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.3-0.5	.20	.28			
	51-65	10-25	30-50	40-50	1.20-1.40	1.40-4.00	0.07-0.17	6.0-8.9	0.1-0.3	.10	.32			
116:														
McAlpin, high precipitation-------	0-5	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.23	3.0-5.9	3.0-6.0	.15	.20	5	6	48
	5-8	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.5-4.0	.15	.24			
	8-14	10-20	40-55	30-40	1.10-1.30	4.00-14.00	0.17-0.22	3.0-5.9	2.0-3.5	.15	.24			
	14-23	10-20	30-55	30-50	1.20-1.40	1.40-14.00	0.13-0.22	3.0-5.9	1.0-2.5	.20	.28			
	23-37	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.5-1.5	.20	.28			
	37-51	10-20	30-50	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.3-0.5	.20	.28			
	51-65	10-25	30-50	40-50	1.20-1.40	1.40-4.00	0.07-0.17	6.0-8.9	0.1-0.3	.10	.32			
117:														
McAlpin, rarely flooded-------------	0-5	10-20	45-63	27-35	1.10-1.30	4.00-14.00	0.18-0.25	1.0-2.9	4.0-7.0	.15	.20	5	6	48
	5-14	10-20	40-60	30-40	1.10-1.30	4.00-14.00	0.17-0.24	1.0-5.9	3.0-6.0	.15	.20			
	14-22	5-20	30-60	30-50	1.20-1.40	1.40-14.00	0.12-0.23	3.0-5.9	1.5-4.0	.15	.24			
	22-31	5-20	30-55	40-50	1.20-1.40	1.40-4.00	0.12-0.18	6.0-8.9	1.0-3.0	.15	.24			
	31-54	5-20	30-55	40-50	1.20-1.40	1.40-4.00	0.12-0.17	6.0-8.9	0.5-1.5	.15	.24			
	54-60	10-30	30-50	40-50	1.20-1.40	1.40-4.00	0.07-0.16	6.0-8.9	0.2-0.8	.10	.32			
118:														
McBee----------------	0-7	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.24	1.0-5.9	3.0-6.0	.20	.20	5	6	48
	7-10	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.24	1.0-5.9	3.0-5.0	.20	.20			
	10-22	5-25	40-65	25-35	1.20-1.40	4.00-14.00	0.20-0.23	1.0-5.9	2.0-4.0	.24	.24			
	22-35	5-25	40-65	25-35	1.20-1.40	4.00-14.00	0.19-0.22	1.0-5.9	0.5-2.5	.32	.32			
	35-42	5-25	40-65	25-35	1.20-1.40	4.00-14.00	0.16-0.22	1.0-5.9	0.4-1.0	.24	.37			
	42-65	5-35	40-65	25-45	1.20-1.40	4.00-14.00	0.12-0.21	1.0-5.9	0.2-0.5	.15	.32			
119:														
McBee, nonflooded----	0-6	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.24	1.0-5.9	3.0-6.0	.20	.20	5	6	48
	6-12	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.24	1.0-5.9	3.0-5.0	.20	.20			
	12-25	5-25	40-65	25-35	1.20-1.40	4.00-14.00	0.20-0.23	1.0-5.9	2.0-4.0	.24	.24			
	25-40	5-25	40-65	25-35	1.20-1.40	4.00-14.00	0.19-0.22	1.0-5.9	0.5-2.5	.32	.32			
	40-60	5-35	40-65	25-45	1.20-1.40	4.00-14.00	0.12-0.21	1.0-5.9	0.2-0.8	.15	.37			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
120:														
Meda----------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-13	---	---	18-25	1.10-1.30	4.00-14.00	0.11-0.15	1.0-2.9	2.0-5.0	.17	.28			
	13-18	---	---	18-35	1.10-1.30	4.00-14.00	0.10-0.15	1.0-2.9	1.0-3.0	.17	.28			
	18-30	---	---	25-35	1.10-1.30	4.00-14.00	0.12-0.18	1.0-2.9	1.0-3.0	.17	.28			
	30-34	---	---	25-35	1.20-1.40	4.00-14.00	0.12-0.18	1.0-2.9	0.0-2.0	.17	.28			
	34-66	---	---	3-15	1.30-1.50	42.00-141.00	0.05-0.09	1.0-2.9	0.0-1.0	.17	.43			
Treharne------------	0-6	---	---	15-20	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	2.0-5.0	.32	.32	5	5	56
	6-14	---	---	15-20	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	1.0-3.0	.37	.37			
	14-21	---	---	18-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-2.0	.37	.37			
	21-32	---	---	18-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-2.0	.37	.37			
	32-68	---	---	20-45	1.30-1.50	1.40-4.00	0.19-0.21	3.0-5.9	0.0-1.0	.43	.43			
Wasson--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	56
	2-11	---	---	10-15	1.10-1.30	14.00-42.00	0.16-0.18	1.0-2.9	1.0-5.0	.32	.32			
	11-15	---	---	5-10	1.10-1.30	14.00-42.00	0.15-0.17	1.0-2.9	1.0-3.0	.49	.49			
	15-33	---	---	5-10	1.20-1.40	14.00-42.00	0.09-0.11	1.0-2.9	0.0-2.0	.37	.37			
	33-66	---	---	5-10	1.20-1.40	14.00-42.00	0.13-0.15	1.0-2.9	0.0-1.0	.32	.32			
121:														
Mulkey--------------	0-10	---	---	10-20	0.70-0.85	14.00-42.00	0.25-0.45	1.0-2.9	10-15	.20	.20	2	6	48
	10-19	---	---	10-20	0.70-0.85	14.00-42.00	0.25-0.45	1.0-2.9	8.0-14	.10	.20			
	19-26	---	---	10-20	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	1.0-6.0	.10	.24			
	26-30	---	---	---	---	---	---	---	---	---	---			
122:														
Mulkey--------------	0-10	---	---	10-20	0.70-0.85	14.00-42.00	0.25-0.45	1.0-2.9	10-15	.20	.20	2	6	48
	10-19	---	---	10-20	0.70-0.85	14.00-42.00	0.25-0.45	1.0-2.9	8.0-14	.10	.20			
	19-26	---	---	10-20	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	1.0-6.0	.10	.24			
	26-30	---	---	---	---	---	---	---	---	---	---			
123:														
Murtip--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-19	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	8.0-12	.20	.28			
	19-31	---	---	18-30	0.75-0.90	14.00-42.00	0.25-0.45	1.0-2.9	4.0-8.0	.24	.28			
	31-45	---	---	18-30	0.75-0.90	4.00-14.00	0.25-0.45	1.0-2.9	1.0-4.0	.24	.24			
	45-56	---	---	18-30	0.80-1.00	4.00-14.00	0.25-0.35	1.0-2.9	0.0-2.0	.20	.32			
	56-66	---	---	---	---	---	---	---	---	---	---			
Giveout-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-16	---	---	12-20	0.75-0.90	14.00-42.00	0.27-0.36	1.0-2.9	8.0-12	.10	.20			
	16-28	---	---	18-30	0.75-0.90	4.00-14.00	0.27-0.40	1.0-2.9	4.0-8.0	.15	.28			
	28-36	---	---	18-30	0.80-1.00	4.00-14.00	0.27-0.40	1.0-2.9	1.0-4.0	.20	.28			
	36-46	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
123:														
Laderly	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	1-15	---	---	12-20	0.75-0.90	14.00-42.00	0.15-0.28	1.0-2.9	8.0-12	.10	.28			
	15-29	---	---	15-27	0.75-0.90	4.00-14.00	0.10-0.28	1.0-2.9	4.0-8.0	.05	.28			
	29-37	---	---	15-27	0.80-1.00	4.00-14.00	0.10-0.25	1.0-2.9	1.0-4.0	.02	.28			
	37-41	---	---	---	---	---	---	---	---	---	---			
124:														
Nekoma	0-5	---	---	5-20	1.00-1.20	14.00-42.00	0.19-0.21	0.0-2.9	4.0-8.0	.28	.28	5	5	56
	5-14	---	---	5-20	1.00-1.20	14.00-42.00	0.19-0.21	0.0-2.9	4.0-8.0	.32	.32			
	14-26	---	---	5-15	1.10-1.30	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.32	.32			
	26-48	---	---	5-15	1.20-1.40	14.00-42.00	0.13-0.15	0.0-2.9	0.0-2.0	.32	.32			
	48-60	---	---	5-15	1.20-1.40	14.00-42.00	0.09-0.11	0.0-2.9	0.0-1.0	.37	.37			
Fluvaquents	0-7	---	---	10-35	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	2.0-4.0	.15	.28	5	6	48
	7-28	---	---	5-35	1.30-1.50	4.00-42.00	0.05-0.21	0.0-2.9	0.1-0.5	.15	.55			
	28-44	---	---	5-25	1.30-1.50	4.00-42.00	0.05-0.21	0.0-2.9	0.1-0.5	.15	.55			
	44-66	---	---	5-25	1.30-1.50	4.00-42.00	0.05-0.21	0.0-2.9	0.1-0.5	.15	.55			
125:														
Newberg	0-7	55-75	10-35	7-20	1.20-1.40	14.00-42.00	0.13-0.17	0.0-2.9	2.0-4.0	.10	.15	5	3	86
	7-19	55-75	10-35	7-20	1.20-1.40	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.28			
	19-28	55-75	10-35	5-20	1.20-1.40	14.00-42.00	0.09-0.16	0.0-2.9	0.5-1.0	.24	.32			
	28-48	60-90	5-35	2-10	1.30-1.50	42.00-141.00	0.04-0.13	0.0-2.9	0.2-0.8	.20	.28			
	48-64	60-90	5-35	2-10	1.30-1.50	42.00-141.00	0.04-0.13	0.0-2.9	0.1-0.7	.15	.24			
126:														
Newberg, high precipitation	0-7	55-75	10-35	7-20	1.20-1.40	14.00-42.00	0.13-0.17	0.0-2.9	2.0-4.0	.10	.15	5	3	86
	7-19	55-75	10-35	7-20	1.20-1.40	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.28			
	19-28	55-75	10-35	5-20	1.20-1.40	14.00-42.00	0.09-0.16	0.0-2.9	0.5-1.0	.24	.32			
	28-48	60-90	5-35	2-10	1.30-1.50	42.00-141.00	0.04-0.13	0.0-2.9	0.2-0.8	.20	.28			
	48-64	60-90	5-35	2-10	1.30-1.50	42.00-141.00	0.04-0.13	0.0-2.9	0.1-0.7	.15	.24			
127:														
Newberg	0-8	40-52	30-50	7-20	1.20-1.40	14.00-42.00	0.16-0.20	0.0-2.9	2.0-4.0	.10	.15	5	5	86
	8-18	55-75	10-35	7-20	1.20-1.40	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.28			
	18-30	55-75	10-35	5-20	1.20-1.40	14.00-42.00	0.09-0.16	0.0-2.9	0.5-1.0	.24	.32			
	30-46	60-90	5-35	2-10	1.30-1.50	42.00-141.00	0.04-0.13	0.0-2.0	0.2-0.8	.20	.28			
	46-60	60-90	5-35	2-10	1.30-1.50	42.00-141.00	0.04-0.13	0.0-2.0	0.1-0.7	.15	.24			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
128:														
Oldblue--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-6	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.40	1.0-2.9	8.0-12	.10	.24			
	6-12	---	---	12-20	0.75-0.90	14.00-42.00	0.25-0.40	1.0-2.9	4.0-8.0	.20	.28			
	12-21	---	---	15-25	0.80-1.00	4.00-14.00	0.30-0.45	1.0-2.9	2.0-6.0	.20	.28			
	21-38	---	---	20-30	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	1.0-4.0	.28	.28			
	38-75	---	---	20-30	1.20-1.40	4.00-14.00	0.19-0.21	1.0-2.9	0.0-2.0	.28	.28			
	75-85	---	---	---	---	---	---	---	---	---	---			
Burntwoods-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	8	0
	1-3	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-12	---	---	12-20	0.75-0.90	14.00-42.00	0.11-0.24	1.0-2.9	8.0-12	.05	.24			
	12-19	---	---	12-20	0.75-0.90	14.00-42.00	0.11-0.24	1.0-2.9	4.0-8.0	.05	.28			
	19-27	---	---	15-30	1.00-1.20	4.00-14.00	0.04-0.11	1.0-2.9	2.0-4.0	.10	.28			
	27-41	---	---	20-30	1.00-1.20	4.00-14.00	0.04-0.11	1.0-2.9	1.0-4.0	.10	.32			
	41-53	---	---	20-30	1.10-1.30	4.00-14.00	0.04-0.11	1.0-2.9	0.0-2.0	.05	.32			
	53-67	---	---	20-30	1.20-1.40	4.00-14.00	0.04-0.11	1.0-2.9	0.0-1.0	.05	.28			
129:														
Panther--------------	0-8	5-20	40-65	27-40	1.20-1.30	1.40-4.00	0.20-0.25	0.0-29.0	4.0-8.0	.20	.24	4	4	86
	8-14	5-20	40-65	27-40	1.20-1.30	1.40-4.00	0.20-0.24	3.0-5.9	3.0-5.0	.20	.20			
	14-24	5-15	15-35	60-70	1.00-1.20	0.01-0.42	0.13-0.18	10.0-20.0	0.5-3.0	.15	.20			
	24-36	5-15	15-35	60-70	1.00-1.20	0.01-0.42	0.12-0.16	10.0-20.0	0.2-0.7	.15	.20			
	36-44	5-15	15-40	55-70	1.00-1.20	0.01-0.42	0.11-0.16	10.0-20.0	0.1-0.5	.20	.24			
	44-54	---	---	---	---	---	---	---	---	---	---			
130:														
Pengra---------------	0-6	5-20	53-75	20-27	1.20-1.30	4.00-14.00	0.21-0.25	0.0-2.9	4.0-8.0	.28	.28	4	6	48
	6-13	5-20	45-65	27-35	1.20-1.30	1.40-4.00	0.21-0.24	3.0-5.9	3.0-5.0	.32	.32			
	13-21	5-20	45-65	27-35	1.20-1.30	1.40-4.00	0.19-0.23	3.0-5.9	1.0-3.0	.37	.37			
	21-36	5-15	15-35	60-70	1.00-1.20	0.01-0.42	0.12-0.16	10.0-20.0	0.4-1.0	.15	.24			
	36-60	5-15	15-35	60-70	1.00-1.20	0.01-0.42	0.12-0.16	10.0-20.0	0.1-0.5	.15	.24			
131:														
Philomath------------	0-4	10-20	40-60	30-40	1.10-1.20	4.00-14.00	0.17-0.24	3.0-5.9	2.5-5.5	.15	.20	2	4	86
	4-8	10-20	35-55	35-55	1.20-1.40	0.42-4.00	0.10-0.23	6.0-8.9	2.0-4.0	.10	.24			
	8-15	10-20	30-50	40-60	1.30-1.60	0.42-1.40	0.09-0.18	6.0-8.9	1.0-3.0	.10	.24			
	15-25	---	---	---	---	---	---	---	---	---	---			
132:														
Pilchuck-------------	0-7	60-75	10-35	5-15	1.20-1.40	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.15	2	3	86
	7-45	75-95	5-20	0-10	1.20-1.40	141.00-705.00	0.04-0.10	0.0-0.5	0.2-0.8	.15	.24			
	45-62	75-95	5-20	0-10	1.40-1.60	141.00-705.00	0.02-0.10	0.0-0.5	0.1-0.5	.05	.24			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
133:														
Pits	---	---	---	---	---	---	---	---	---	---	---	--	---	---
134:														
Preacher	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-12	---	---	15-25	0.80-1.00	14.00-42.00	0.30-0.45	1.0-2.9	5.0-12	.17	.20			
	12-18	---	---	15-25	1.00-1.20	4.00-14.00	0.14-0.18	1.0-2.9	4.0-10	.20	.24			
	18-29	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.20	.28			
	44-53	---	---	10-35	1.30-1.50	4.00-14.00	0.14-0.18	1.0-2.9	0.0-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---	---	---			
Blachly	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-7	---	---	15-25	1.00-1.10	4.00-14.11	0.14-0.17	1.0-2.9	6.0-12	.17	.20			
	7-16	---	---	20-35	1.00-1.20	4.00-14.11	0.16-0.20	3.0-5.9	4.0-8.0	.17	.20			
	16-27	---	---	35-50	1.10-1.30	1.40-4.00	0.16-0.20	3.0-5.9	1.0-5.0	.20	.28			
	27-54	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.18	3.0-5.9	1.0-4.0	.24	.28			
	54-65	---	---	35-50	1.20-1.40	1.40-4.00	0.13-0.18	3.0-5.9	0.0-1.0	.20	.24			
	65-96	---	---	35-45	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.0-1.0	.24	.28			
Bohannon	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	2-10	---	---	15-25	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-12	.10	.20			
	10-19	---	---	15-25	1.00-1.20	4.00-14.00	0.12-0.15	1.0-2.9	4.0-10	.15	.24			
	19-27	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	2.0-6.0	.17	.32			
	27-34	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	0.0-2.0	.20	.37			
	34-44	---	---	---	---	---	---	---	---	---	---			
135:														
Preacher	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-12	---	---	15-25	0.80-1.00	14.00-42.00	0.30-0.45	1.0-2.9	5.0-12	.17	.20			
	12-18	---	---	15-25	1.00-1.20	4.00-14.00	0.14-0.18	1.0-2.9	4.0-10	.20	.24			
	18-29	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.20	.28			
	44-53	---	---	10-35	1.30-1.50	4.00-14.00	0.14-0.18	1.0-2.9	0.0-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---	---	---			
Bohannon	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	2-10	---	---	15-25	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-12	.10	.20			
	10-19	---	---	15-25	1.00-1.20	4.00-14.00	0.12-0.15	1.0-2.9	4.0-10	.15	.24			
	19-27	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	2.0-6.0	.17	.32			
	27-34	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	0.0-2.0	.20	.37			
	34-44	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
136:														
Preacher---------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	6	48
	2-12	---	---	15-25	0.80-1.00	14.00-42.00	0.30-0.45	1.0-2.9	5.0-12	.17	.20			
	12-18	---	---	15-25	1.00-1.20	4.00-14.00	0.14-0.18	1.0-2.9	4.0-10	.20	.24			
	18-29	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	2.0-6.0	.20	.24			
	29-44	---	---	20-35	1.20-1.40	4.00-14.00	0.16-0.21	3.0-5.9	0.0-2.0	.20	.28			
	44-53	---	---	10-35	1.30-1.50	4.00-14.00	0.14-0.18	1.0-2.9	0.0-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---	---	---			
Bohannon---------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	2-10	---	---	15-25	0.80-1.00	14.00-42.00	0.25-0.35	1.0-2.9	5.0-12	.10	.20			
	10-19	---	---	15-25	1.00-1.20	4.00-14.00	0.12-0.15	1.0-2.9	4.0-10	.15	.24			
	19-27	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	2.0-6.0	.17	.32			
	27-34	---	---	18-30	1.20-1.40	4.00-14.00	0.11-0.17	3.0-5.9	0.0-2.0	.20	.37			
	34-44	---	---	---	---	---	---	---	---	---	---			
Slickrock--------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-11	---	---	18-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.10	.20			
	11-23	---	---	18-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.15	.20			
	23-36	---	---	25-35	0.80-1.00	4.00-14.00	0.12-0.18	1.0-2.9	4.0-8.0	.15	.20			
	36-48	---	---	25-35	0.90-1.10	4.00-14.00	0.12-0.18	1.0-2.9	1.0-4.0	.15	.24			
	48-60	---	---	25-35	1.00-1.30	4.00-14.00	0.12-0.18	1.0-2.9	1.0-4.0	.17	.28			
137:														
Price------------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-8	5-20	45-65	27-35	1.30-1.45	4.00-14.00	0.16-0.24	0.0-2.9	4.0-6.0	.24	.28			
	8-17	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.12-0.21	3.0-5.9	3.0-5.0	.20	.24			
	17-31	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.12-0.21	3.0-5.9	1.5-4.0	.15	.24			
	31-54	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.12-0.20	3.0-5.9	1.0-3.0	.15	.24			
	54-86	5-20	30-60	35-50	1.35-1.45	1.40-4.00	0.10-0.18	3.0-5.9	0.5-1.5	.10	.24			
	86-90	---	---	---	---	---	---	---	---	---	---			
MacDunn----------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	7	38
	1-7	10-20	45-63	27-35	1.30-1.50	4.00-14.00	0.14-0.21	0.0-2.9	4.0-6.0	.10	.20			
	7-15	10-30	40-60	27-35	1.30-1.45	4.00-14.00	0.13-0.20	0.0-2.9	3.0-5.0	.10	.20			
	15-24	10-35	20-50	35-50	1.35-1.45	1.40-4.00	0.03-0.13	3.0-5.9	1.5-4.0	.05	.20			
	24-38	10-35	20-50	35-50	1.35-1.45	1.40-4.00	0.03-0.12	3.0-5.9	1.0-3.0	.05	.20			
	38-51	10-35	20-50	35-50	1.35-1.45	1.40-4.00	0.03-0.11	3.0-5.9	0.5-1.5	.02	.20			
	51-61	---	---	---	---	---	---	---	---	---	---			
Ritner-----------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	7	38
	1-6	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.14-0.22	0.0-2.9	3.0-7.0	.10	.15			
	6-16	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.10-0.20	3.0-5.9	1.0-4.0	.10	.24			
	16-25	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.8-3.0	.10	.24			
	25-39	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.5-2.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
138:														
Riverwash------------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
139:														
Salem----------------	0-9	15-35	50-65	15-25	1.10-1.30	4.00-14.00	0.14-0.21	0.0-2.9	3.0-6.0	.15	.28	3	6	48
	9-18	15-50	15-55	25-35	1.20-1.40	1.40-4.00	0.12-0.19	3.0-5.9	2.0-4.0	.15	.28			
	18-30	30-60	15-35	25-35	1.20-1.40	1.40-4.00	0.08-0.19	3.0-5.9	1.0-3.0	.10	.28			
	30-60	80-100	0-20	0-15	1.40-1.60	141.00-705.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.24			
140:														
Santiam--------------	0-6	15-30	50-60	18-27	1.15-1.30	4.00-14.00	0.19-0.23	0.0-2.9	1.0-3.0	.32	.37	5	6	48
	6-13	10-20	50-65	20-35	1.20-1.35	4.00-14.00	0.18-0.22	0.0-2.9	0.5-1.0	.37	.43			
	13-22	10-20	35-50	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.4-0.8	.28	.32			
	22-30	10-20	35-50	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.2-0.7	.28	.32			
	30-60	10-20	30-50	40-50	1.30-1.50	0.42-1.40	0.13-0.17	6.0-8.9	0.2-0.6	.28	.32			
141:														
Santiam--------------	0-6	15-30	50-60	18-27	1.15-1.30	4.00-14.00	0.19-0.23	0.0-2.9	1.0-3.0	.32	.37	5	6	48
	6-13	10-20	50-65	20-35	1.20-1.35	4.00-14.00	0.18-0.22	0.0-2.9	0.5-1.0	.37	.43			
	13-22	10-20	35-50	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.4-0.8	.28	.32			
	22-30	10-20	35-50	35-45	1.20-1.40	1.40-4.00	0.13-0.21	3.0-5.9	0.2-0.7	.28	.32			
	30-60	10-20	30-50	40-50	1.30-1.50	0.42-1.40	0.13-0.17	6.0-8.9	0.2-0.6	.28	.32			
142:														
Sevencedars----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-8	---	---	10-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.10	.20			
	8-17	---	---	10-25	0.75-0.90	14.00-42.00	0.15-0.27	1.0-2.9	8.0-12	.10	.24			
	17-30	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.27	1.0-2.9	4.0-8.0	.10	.24			
	30-48	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.27	1.0-2.9	1.0-4.0	.10	.32			
	48-65	---	---	10-25	0.80-1.00	4.00-14.00	0.10-0.27	1.0-2.9	0.0-3.0	.10	.32			
Newanna--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	2-13	---	---	10-25	0.75-0.90	14.00-42.00	0.15-0.29	1.0-2.9	10-14	.05	.20			
	13-22	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.29	1.0-2.9	4.0-8.0	.05	.24			
	22-33	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.29	1.0-2.9	1.0-4.0	.05	.32			
	33-37	---	---	---	---	---	---	---	---	---	---			
143:														
Sevencedars----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-8	---	---	10-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.10	.20			
	8-17	---	---	10-25	0.75-0.90	14.00-42.00	0.15-0.27	1.0-2.9	8.0-12	.10	.24			
	17-30	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.27	1.0-2.9	4.0-8.0	.10	.24			
	30-48	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.27	1.0-2.9	1.0-4.0	.10	.32			
	48-65	---	---	10-25	0.80-1.00	4.00-14.00	0.10-0.27	1.0-2.9	0.0-3.0	.10	.32			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
143:														
Newanna--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	2-13	---	---	10-25	0.75-0.90	14.00-42.00	0.15-0.29	1.0-2.9	10-14	.05	.20			
	13-22	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.29	1.0-2.9	4.0-8.0	.05	.24			
	22-33	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.29	1.0-2.9	1.0-4.0	.05	.32			
	33-37	---	---	---	---	---	---	---	---	---	---			
Woodspoint-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-5	---	---	10-25	0.75-0.90	14.00-42.00	0.30-0.45	1.0-2.9	10-14	.15	.20			
	5-16	---	---	10-25	0.75-0.90	14.00-42.00	0.30-0.45	1.0-2.9	8.0-12	.17	.24			
	16-27	---	---	10-25	0.75-0.90	4.00-14.00	0.25-0.40	1.0-2.9	4.0-8.0	.10	.24			
	27-46	---	---	10-25	0.80-1.00	4.00-14.00	0.25-0.40	1.0-2.9	1.0-4.0	.15	.32			
	46-50	---	---	---	---	---	---	---	---	---	---			
144:														
Sevencedars----------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	2-8	---	---	10-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.10	.20			
	8-17	---	---	10-25	0.75-0.90	14.00-42.00	0.15-0.27	1.0-2.9	8.0-12	.10	.24			
	17-30	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.27	1.0-2.9	4.0-8.0	.10	.24			
	30-48	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.27	1.0-2.9	1.0-4.0	.10	.32			
	48-65	---	---	10-25	0.80-1.00	4.00-14.00	0.10-0.27	1.0-2.9	0.0-3.0	.10	.32			
Newanna--------------	0-2	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	2-13	---	---	10-25	0.75-0.90	14.00-42.00	0.15-0.29	1.0-2.9	10-14	.05	.20			
	13-22	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.29	1.0-2.9	4.0-8.0	.05	.24			
	22-33	---	---	10-25	0.75-0.90	4.00-14.00	0.10-0.29	1.0-2.9	1.0-4.0	.05	.32			
	33-37	---	---	---	---	---	---	---	---	---	---			
Woodspoint-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	6	48
	1-5	---	---	10-25	0.75-0.90	14.00-42.00	0.30-0.45	1.0-2.9	10-14	.15	.20			
	5-16	---	---	10-25	0.75-0.90	14.00-42.00	0.30-0.45	1.0-2.9	8.0-12	.17	.24			
	16-27	---	---	10-25	0.75-0.90	4.00-14.00	0.25-0.40	1.0-2.9	4.0-8.0	.10	.24			
	27-46	---	---	10-25	0.80-1.00	4.00-14.00	0.25-0.40	1.0-2.9	1.0-4.0	.15	.32			
	46-50	---	---	---	---	---	---	---	---	---	---			
145:														
Shivigny-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	8	0
	1-7	---	---	27-35	1.00-1.20	4.00-14.00	0.07-0.14	1.0-2.9	5.0-10	.05	.20			
	7-13	---	---	30-50	1.00-1.20	1.40-4.00	0.04-0.14	3.0-5.9	3.0-7.0	.05	.20			
	13-23	---	---	40-55	1.10-1.30	1.40-4.00	0.03-0.11	3.0-5.9	1.0-4.0	.05	.24			
	23-34	---	---	40-55	1.10-1.30	1.40-4.00	0.03-0.11	3.0-5.9	0.0-3.0	.02	.24			
	34-43	---	---	40-55	1.20-1.40	1.40-4.00	0.03-0.11	3.0-5.9	0.0-2.0	.02	.24			
	43-68	---	---	40-55	1.20-1.40	1.40-4.00	0.03-0.11	3.0-5.9	0.0-1.0	.05	.24			
	68-78	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
145:														
Honeygrove, basalt bedrock-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	6	48
	1-9	---	---	27-35	1.00-1.20	4.00-14.00	0.17-0.21	1.0-2.9	5.0-10	.17	.17			
	9-15	---	---	35-60	1.00-1.20	1.40-4.00	0.13-0.17	3.0-5.9	3.0-7.0	.15	.17			
	15-22	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	1.0-4.0	.20	.20			
	22-37	---	---	45-60	1.10-1.30	1.40-4.00	0.12-0.16	3.0-5.9	0.0-3.0	.20	.20			
	37-50	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-2.0	.20	.20			
	50-67	---	---	45-60	1.20-1.40	1.40-4.00	0.12-0.16	3.0-5.9	0.0-1.0	.20	.20			
146:														
Slickrock------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	7	38
	1-11	---	---	18-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.10	.20			
	11-23	---	---	18-25	0.75-0.90	14.00-42.00	0.25-0.35	1.0-2.9	10-14	.15	.20			
	23-36	---	---	25-35	0.80-1.00	4.00-14.00	0.12-0.18	1.0-2.9	4.0-8.0	.15	.20			
	36-48	---	---	25-35	0.90-1.10	4.00-14.00	0.12-0.18	1.0-2.9	1.0-4.0	.15	.24			
	48-60	---	---	25-35	1.00-1.30	4.00-14.00	0.12-0.18	1.0-2.9	1.0-4.0	.17	.28			
147:														
Steiwer--------------	0-7	15-25	53-65	20-27	1.10-1.30	4.00-14.00	0.19-0.24	0.0-2.9	2.0-6.0	.20	.24	3	6	48
	7-15	15-30	35-60	25-35	1.10-1.30	4.00-14.00	0.15-0.23	3.0-5.9	1.5-4.0	.28	.32			
	15-19	18-40	30-55	27-35	1.20-1.40	1.40-4.00	0.15-0.23	3.0-5.9	1.0-3.0	.15	.28			
	19-26	18-40	30-55	27-35	1.20-1.40	1.40-4.00	0.15-0.21	3.0-5.9	0.3-1.5	.20	.32			
	26-36	---	---	---	---	---	---	---	---	---	---			
Chehulpum------------	0-4	15-25	50-65	18-27	1.10-1.30	4.00-14.00	0.17-0.24	0.0-2.9	2.0-6.0	.20	.24	2	6	48
	4-12	18-35	35-60	20-30	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	1.0-4.0	.20	.32			
	12-22	---	---	---	---	---	---	---	---	---	---			
148:														
Steiwer--------------	0-7	15-25	53-65	20-27	1.10-1.30	4.00-14.00	0.19-0.24	0.0-2.9	2.0-6.0	.20	.24	3	6	48
	7-15	15-30	35-60	25-35	1.10-1.30	4.00-14.00	0.15-0.23	3.0-5.9	1.5-4.0	.28	.32			
	15-19	18-40	30-55	27-35	1.20-1.40	1.40-4.00	0.15-0.23	3.0-5.9	1.0-3.0	.15	.28			
	19-26	18-40	30-55	27-35	1.20-1.40	1.40-4.00	0.15-0.21	3.0-5.9	0.3-1.5	.20	.32			
	26-36	---	---	---	---	---	---	---	---	---	---			
Chehulpum------------	0-4	15-25	50-65	18-27	1.10-1.30	4.00-14.00	0.17-0.24	0.0-2.9	2.0-6.0	.20	.24	2	6	48
	4-12	18-35	35-60	20-30	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	1.0-4.0	.20	.32			
	12-22	---	---	---	---	---	---	---	---	---	---			
149:														
Steiwer--------------	0-7	15-25	53-65	20-27	1.10-1.30	4.00-14.00	0.19-0.24	0.0-2.9	2.0-6.0	.20	.24	3	6	48
	7-15	15-30	35-60	25-35	1.10-1.30	4.00-14.00	0.15-0.23	3.0-5.9	1.5-4.0	.28	.32			
	15-19	18-40	30-55	27-35	1.20-1.40	1.40-4.00	0.15-0.23	3.0-5.9	1.0-3.0	.15	.28			
	19-26	18-40	30-55	27-35	1.20-1.40	1.40-4.00	0.15-0.21	3.0-5.9	0.3-1.5	.20	.32			
	26-36	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
149:														
Chehulpum-------------	0-4	15-25	50-65	18-27	1.10-1.30	4.00-14.00	0.17-0.24	0.0-2.9	2.0-6.0	.20	.24	2	6	48
	4-12	18-35	35-60	20-30	1.20-1.40	4.00-14.00	0.12-0.23	0.0-2.9	1.0-4.0	.20	.32			
	12-22	---	---	---	---	---	---	---	---	---	---			
150:														
Treharne--------------	0-6	---	---	15-20	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	2.0-5.0	.32	.32	5	5	56
	6-14	---	---	15-20	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	1.0-3.0	.37	.37			
	14-21	---	---	18-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-2.0	.37	.37			
	21-32	---	---	18-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-2.0	.37	.37			
	32-68	---	---	20-45	1.30-1.50	1.40-4.00	0.19-0.21	3.0-5.9	0.0-1.0	.43	.43			
Eilertsen-------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	56
	1-9	---	---	12-20	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	3.0-6.0	.37	.37			
	9-18	---	---	12-20	1.10-1.30	4.00-14.00	0.19-0.21	1.0-2.9	3.0-6.0	.37	.37			
	18-29	---	---	18-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-3.0	.37	.37			
	29-45	---	---	18-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	0.0-3.0	.37	.37			
	45-54	---	---	10-25	1.30-1.50	4.00-14.00	0.16-0.18	3.0-5.9	0.0-1.0	.37	.37			
	54-72	---	---	10-25	1.30-1.50	4.00-14.00	0.16-0.18	3.0-5.9	0.0-1.0	.43	.43			
Zyzzug----------------	0-12	---	---	20-27	1.10-1.30	4.00-14.00	0.19-0.21	3.0-5.9	4.0-8.0	.32	.32	5	6	48
	12-36	---	---	25-35	1.20-1.40	4.00-14.00	0.19-0.21	3.0-5.9	1.0-4.0	.37	.37			
	36-42	---	---	25-35	1.20-1.40	1.40-4.00	0.19-0.21	3.0-5.9	0.0-2.0	.37	.37			
	42-63	---	---	25-35	1.20-1.40	1.40-4.00	0.19-0.21	3.0-5.9	0.0-2.0	.37	.37			
151:														
Valsetz---------------	0-3	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	3-11	---	---	20-25	0.75-0.90	14.00-42.00	0.15-0.27	1.0-2.9	10-14	.05	.20			
	11-21	---	---	10-25	0.75-0.90	14.00-42.00	0.11-0.25	1.0-2.9	8.0-12	.05	.24			
	21-30	---	---	10-25	0.75-0.90	14.00-42.00	0.11-0.25	1.0-2.9	4.0-8.0	.05	.28			
	30-35	---	---	10-25	0.80-1.00	14.00-42.00	0.11-0.25	1.0-2.9	1.0-4.0	.05	.28			
	35-39	---	---	---	---	---	---	---	---	---	---			
Yellowstone-----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-4	---	---	10-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	10-14	.05	.20			
	4-9	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	8.0-12	.05	.24			
	9-18	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	2.0-6.0	.02	.28			
	18-22	---	---	---	---	---	---	---	---	---	---			
152:														
Valsetz---------------	0-3	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	3-11	---	---	20-25	0.75-0.90	14.00-42.00	0.15-0.27	1.0-2.9	10-14	.05	.20			
	11-21	---	---	10-25	0.75-0.90	14.00-42.00	0.11-0.25	1.0-2.9	8.0-12	.05	.24			
	21-30	---	---	10-25	0.75-0.90	14.00-42.00	0.11-0.25	1.0-2.9	4.0-8.0	.05	.28			
	30-35	---	---	10-25	0.80-1.00	14.00-42.00	0.11-0.25	1.0-2.9	1.0-4.0	.05	.28			
	35-39	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
152:														
Yellowstone----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-4	---	---	10-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	10-14	.05	.20			
	4-9	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	8.0-12	.05	.24			
	9-18	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	2.0-6.0	.02	.28			
	18-22	---	---	---	---	---	---	---	---	---	---			
153:														
Valsetz--------------	0-3	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	8	0
	3-11	---	---	20-25	0.75-0.90	14.00-42.00	0.15-0.27	1.0-2.9	10-14	.05	.20			
	11-21	---	---	10-25	0.75-0.90	14.00-42.00	0.11-0.25	1.0-2.9	8.0-12	.05	.24			
	21-30	---	---	10-25	0.75-0.90	14.00-42.00	0.11-0.25	1.0-2.9	4.0-8.0	.05	.28			
	30-35	---	---	10-25	0.80-1.00	14.00-42.00	0.11-0.25	1.0-2.9	1.0-4.0	.05	.28			
	35-39	---	---	---	---	---	---	---	---	---	---			
Yellowstone----------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	8	0
	1-4	---	---	10-20	0.75-0.90	14.00-42.00	0.15-0.30	1.0-2.9	10-14	.05	.20			
	4-9	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	8.0-12	.05	.24			
	9-18	---	---	10-20	0.75-0.90	14.00-42.00	0.10-0.25	1.0-2.9	2.0-6.0	.02	.28			
	18-22	---	---	---	---	---	---	---	---	---	---			
154:														
Verboort-------------	0-8	5-15	50-65	27-35	1.10-1.30	4.00-14.00	0.20-0.24	0.0-2.9	3.0-5.0	.28	.28	3	6	48
	8-12	5-15	50-65	27-35	1.10-1.30	4.00-14.00	0.20-0.23	2.0-5.9	1.0-3.0	.37	.37			
	12-19	5-15	55-70	25-35	1.30-1.50	4.00-14.00	0.19-0.22	1.0-5.9	0.5-1.0	.49	.49			
	19-28	5-11	39-60	40-50	1.25-1.45	0.01-0.42	0.14-0.17	9.0-13.0	0.3-0.6	.32	.32			
	28-33	5-11	39-60	40-50	1.25-1.45	0.01-0.42	0.14-0.17	9.0-12.0	0.2-0.5	.37	.37			
	33-60	5-25	50-70	25-35	1.30-1.50	1.40-14.00	0.19-0.21	1.0-5.9	0.1-0.3	.55	.55			
155:														
Waldo----------------	0-2	5-15	40-65	27-40	1.05-1.15	4.00-14.00	0.19-0.26	1.0-2.9	5.0-10	.15	.24	5	6	48
	2-7	5-15	40-65	27-40	1.10-1.30	4.00-14.00	0.17-0.24	1.5-5.9	3.0-7.0	.15	.24			
	7-10	5-15	40-65	27-40	1.10-1.35	4.00-14.00	0.17-0.23	1.5-5.9	2.5-4.5	.15	.24			
	10-15	5-15	30-55	35-55	1.10-1.35	0.42-4.00	0.14-0.23	6.0-11.9	1.0-4.0	.15	.15			
	15-23	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.18	6.0-15.0	0.5-2.5	.20	.20			
	23-37	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.17	6.0-15.0	0.4-1.0	.20	.20			
	37-46	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.17	6.0-15.0	0.2-0.9	.28	.28			
	46-60	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.17	6.0-15.0	0.2-0.5	.32	.32			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
156:														
Waldo, high precipitation-------	0-2	5-15	40-65	27-40	1.05-1.15	4.00-14.00	0.19-0.26	1.0-2.9	5.0-10	.15	.24	5	6	48
	2-7	5-15	40-65	27-40	1.10-1.30	4.00-14.00	0.17-0.24	1.5-5.9	3.0-7.0	.15	.24			
	7-10	5-15	40-65	27-40	1.10-1.35	4.00-14.00	0.17-0.23	1.5-5.9	2.5-4.5	.15	.24			
	10-15	5-15	30-55	35-55	1.10-1.35	0.42-4.00	0.14-0.23	6.0-11.9	1.0-4.0	.15	.15			
	15-23	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.18	6.0-15.0	0.5-2.5	.20	.20			
	23-37	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.17	6.0-15.0	0.4-1.0	.20	.20			
	37-46	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.17	6.0-15.0	0.2-0.9	.28	.28			
	46-60	5-15	30-55	40-55	1.10-1.35	0.42-1.40	0.14-0.17	6.0-15.0	0.2-0.5	.32	.32			
157:														
Wapato---------------	0-9	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.25	1.0-5.9	4.0-8.0	.24	.24	5	6	48
	9-16	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.20-0.24	1.0-5.9	2.0-5.0	.24	.24			
	16-22	5-20	50-65	27-35	1.20-1.40	4.00-14.00	0.20-0.23	1.0-5.9	1.0-4.0	.32	.32			
	22-32	5-20	50-65	27-40	1.20-1.40	4.00-14.00	0.20-0.23	1.0-5.9	1.0-3.0	.32	.32			
	32-60	2-20	40-60	35-50	1.20-1.50	1.40-4.00	0.15-0.22	3.0-5.9	0.2-1.5	.32	.32			
158:														
Wapato, high precipitation-------	0-9	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.21-0.25	3.0-5.9	4.0-8.0	.24	.24	5	6	48
	9-16	5-20	50-65	27-35	1.10-1.30	4.00-14.00	0.20-0.24	3.0-5.9	2.0-5.0	.24	.24			
	16-22	5-20	50-65	27-35	1.20-1.40	4.00-14.00	0.20-0.23	3.0-5.9	1.0-4.0	.32	.32			
	22-32	5-20	50-65	27-35	1.20-1.40	4.00-14.00	0.20-0.23	3.0-5.9	1.0-3.0	.32	.32			
	32-60	2-20	40-60	35-50	1.20-1.50	1.40-4.00	0.15-0.22	3.0-5.9	0.2-1.5	.32	.32			
159:														
Water----------------	---	---	---	---	---	---	---	---	---	---	---	--	---	---
160:														
Wellsdale------------	0-2	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	5	6	48
	2-8	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.16-0.20	1.0-2.9	0.8-3.0	.32	.32			
	8-24	30-40	35-50	20-30	1.30-1.45	1.40-4.00	0.15-0.22	1.0-2.9	0.5-2.0	.37	.37			
	24-34	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.15-0.21	1.0-5.9	0.5-1.0	.37	.37			
	34-57	30-40	20-40	25-40	1.30-1.55	1.40-4.00	0.13-0.21	1.5-5.9	0.1-0.8	.28	.28			
	57-65	30-45	20-30	25-40	1.15-1.45	1.40-4.00	0.11-0.21	1.0-5.9	0.1-0.5	.32	.32			
Willakenzie----------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
161:														
Wellsdale------------	0-2	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	5	6	48
	2-8	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.16-0.20	1.0-2.9	0.8-3.0	.32	.32			
	8-24	30-40	35-50	20-30	1.30-1.45	1.40-4.00	0.15-0.22	1.0-2.9	0.5-2.0	.37	.37			
	24-34	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.15-0.21	1.0-5.9	0.5-1.0	.37	.37			
	34-57	30-40	20-40	25-40	1.30-1.55	1.40-4.00	0.13-0.21	1.5-5.9	0.1-0.8	.28	.28			
	57-65	30-45	20-30	25-40	1.15-1.45	1.40-4.00	0.11-0.21	1.0-5.9	0.1-0.5	.32	.32			
Willakenzie----------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			
Dupee----------------	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			
162:														
Wellsdale, north slopes--------------	0-2	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	5	6	48
	2-8	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.16-0.20	1.0-2.9	0.8-3.0	.32	.32			
	8-24	30-40	35-50	20-30	1.30-1.45	1.40-4.00	0.15-0.22	1.0-2.9	0.5-2.0	.37	.37			
	24-34	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.15-0.21	1.0-5.9	0.5-1.0	.37	.37			
	34-57	30-40	20-40	25-40	1.30-1.55	1.40-4.00	0.13-0.21	1.5-5.9	0.1-0.8	.28	.28			
	57-65	30-45	20-30	25-40	1.15-1.45	1.40-4.00	0.11-0.21	1.0-5.9	0.1-0.5	.32	.32			
Willakenzie, north slopes--------------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
162:														
Dupee, north slopes--	0-4	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.24	.28	5	6	48
	4-9	10-30	50-70	15-27	1.10-1.30	4.00-14.00	0.18-0.23	0.0-2.9	1.0-3.0	.32	.37			
	9-17	10-30	35-65	25-35	1.20-1.40	1.40-14.00	0.18-0.21	0.0-5.9	0.7-1.5	.32	.37			
	17-24	10-30	30-63	27-40	1.20-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.5-1.0	.32	.37			
	24-34	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.4-0.8	.20	.24			
	34-42	5-30	25-55	35-50	1.30-1.50	1.40-4.00	0.13-0.21	6.0-8.9	0.3-0.6	.15	.24			
	42-51	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.2-0.4	.20	.32			
	51-62	5-30	25-60	30-50	1.30-1.50	1.40-4.00	0.13-0.21	3.0-8.9	0.1-0.3	.20	.32			
163:														
Willakenzie----------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			
164:														
Willakenzie----------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			
165:														
Willakenzie----------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			
166:														
Willakenzie----------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			
167:														
Willakenzie, south slopes--------------	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
167:														
Wellsdale, south slopes	0-2	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	5	6	48
	2-8	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.16-0.20	1.0-2.9	0.8-3.0	.32	.32			
	8-24	30-40	35-50	20-30	1.30-1.45	1.40-4.00	0.15-0.22	1.0-2.9	0.5-2.0	.37	.37			
	24-34	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.15-0.21	1.0-5.9	0.5-1.0	.37	.37			
	34-57	30-40	20-40	25-40	1.30-1.55	1.40-4.00	0.13-0.21	1.5-5.9	0.1-0.8	.28	.28			
	57-65	30-45	20-30	25-40	1.15-1.45	1.40-4.00	0.11-0.21	1.0-5.9	0.1-0.5	.32	.32			
168:														
Willakenzie	0-5	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	3	6	48
	5-11	30-40	35-50	20-30	1.25-1.45	4.00-14.00	0.16-0.22	1.0-2.9	0.8-2.5	.32	.32			
	11-19	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.14-0.21	1.0-4.0	0.5-1.0	.28	.28			
	19-32	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.13-0.21	1.5-4.0	0.1-0.8	.37	.37			
	32-42	---	---	---	---	---	---	---	---	---	---			
Wellsdale	0-2	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.17-0.21	1.0-2.9	2.0-6.0	.24	.24	5	6	48
	2-8	30-40	40-50	15-27	1.25-1.45	4.00-14.00	0.16-0.20	1.0-2.9	0.8-3.0	.32	.32			
	8-24	30-40	35-50	20-30	1.30-1.45	1.40-4.00	0.15-0.22	1.0-2.9	0.5-2.0	.37	.37			
	24-34	30-40	25-45	24-35	1.35-1.55	1.40-4.00	0.15-0.21	1.0-5.9	0.5-1.0	.37	.37			
	34-57	30-40	20-40	25-40	1.30-1.55	1.40-4.00	0.13-0.21	1.5-5.9	0.1-0.8	.28	.28			
	57-65	30-45	20-30	25-40	1.15-1.45	1.40-4.00	0.11-0.21	1.0-5.9	0.1-0.5	.32	.32			
169:														
Willamette	0-6	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	6-13	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	13-24	2-15	60-75	20-27	1.35-1.55	4.00-14.00	0.18-0.22	0.5-2.9	0.8-2.5	.43	.43			
	24-33	2-15	60-75	20-35	1.35-1.55	1.40-14.00	0.19-0.21	0.5-5.9	0.5-1.0	.49	.49			
	33-45	2-15	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.1-0.5	.55	.55			
	45-53	2-15	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	53-60	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
170:														
Willamette	0-6	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	6-13	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	13-24	2-15	60-75	20-27	1.35-1.55	4.00-14.00	0.18-0.22	0.5-2.9	0.8-2.5	.43	.43			
	24-33	2-15	60-75	20-35	1.35-1.55	1.40-14.00	0.19-0.21	0.5-5.9	0.5-1.0	.49	.49			
	33-45	2-15	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.1-0.5	.55	.55			
	45-53	2-15	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	53-60	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
171:														
Willamette-----------	0-6	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	6-13	2-15	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	13-24	2-15	60-75	20-27	1.35-1.55	4.00-14.00	0.18-0.22	0.5-2.9	0.8-2.5	.43	.43			
	24-33	2-15	60-75	20-35	1.35-1.55	1.40-14.00	0.19-0.21	0.5-5.9	0.5-1.0	.49	.49			
	33-45	2-15	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.1-0.5	.55	.55			
	45-53	2-15	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	53-60	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
172:														
Witham---------------	0-4	1-15	45-70	27-40	1.10-1.30	0.42-1.40	0.21-0.26	6.0-8.9	5.0-10	.24	.24	5	4	86
	4-12	1-15	30-59	40-60	1.10-1.30	0.01-0.42	0.14-0.20	9.0-15.0	2.0-5.0	.20	.20			
	12-21	1-15	30-49	50-60	1.10-1.30	0.01-0.42	0.13-0.19	10.0-17.0	1.0-3.0	.24	.24			
	21-29	1-15	30-49	50-60	1.10-1.30	0.01-0.42	0.13-0.17	10.0-17.0	0.5-1.0	.28	.28			
	29-60	5-15	25-45	50-60	1.10-1.30	0.01-0.42	0.13-0.17	10.0-17.0	0.1-0.7	.28	.32			
173:														
Witham---------------	0-4	1-15	45-70	27-40	1.10-1.30	0.42-1.40	0.21-0.26	6.0-8.9	5.0-10	.24	.24	5	4	86
	4-12	1-15	30-59	40-60	1.10-1.30	0.01-0.42	0.14-0.20	9.0-15.0	2.0-5.0	.20	.20			
	12-21	1-15	30-49	50-60	1.10-1.30	0.01-0.42	0.13-0.19	10.0-17.0	1.0-3.0	.24	.24			
	21-29	1-15	30-49	50-60	1.10-1.30	0.01-0.42	0.13-0.17	10.0-17.0	0.5-1.0	.28	.28			
	29-60	5-15	25-45	50-60	1.10-1.30	0.01-0.42	0.13-0.17	10.0-17.0	0.1-0.7	.28	.32			
174:														
Witzel---------------	0-4	23-35	38-50	18-27	1.20-1.30	4.00-14.00	0.08-0.15	0.0-3.0	3.0-6.0	.10	.20	1	8	0
	4-11	10-35	30-60	25-35	1.30-1.50	1.40-14.00	0.04-0.15	0.0-3.0	1.0-4.0	.10	.28			
	11-17	10-35	30-60	25-35	1.30-1.50	1.40-14.00	0.04-0.14	0.0-3.0	0.5-3.0	.10	.32			
	17-21	---	---	---	---	---	---	---	---	---	---			
Ritner---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	7	38
	1-6	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.14-0.22	0.0-2.9	3.0-7.0	.10	.15			
	6-16	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.10-0.20	3.0-5.9	1.0-4.0	.10	.24			
	16-25	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.8-3.0	.10	.24			
	25-39	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.5-2.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---	---	---			
175:														
Witzel---------------	0-4	23-35	38-50	18-27	1.20-1.30	4.00-14.00	0.08-0.15	0.0-3.0	3.0-6.0	.10	.20	1	8	0
	4-11	10-35	30-60	25-35	1.30-1.50	1.40-14.00	0.04-0.15	0.0-3.0	1.0-4.0	.10	.28			
	11-17	10-35	30-60	25-35	1.30-1.50	1.40-14.00	0.04-0.14	0.0-3.0	0.5-3.0	.10	.32			
	17-21	---	---	---	---	---	---	---	---	---	---			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
175:														
Ritner---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	7	38
	1-6	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.14-0.22	0.0-2.9	3.0-7.0	.10	.15			
	6-16	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.10-0.20	3.0-5.9	1.0-4.0	.10	.24			
	16-25	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.8-3.0	.10	.24			
	25-39	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.5-2.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---	---	---			
176:														
Witzel---------------	0-4	23-35	38-50	18-27	1.20-1.30	4.00-14.00	0.08-0.15	0.0-3.0	3.0-6.0	.10	.20	1	8	0
	4-11	10-35	30-60	25-35	1.30-1.50	1.40-14.00	0.04-0.15	0.0-3.0	1.0-4.0	.10	.28			
	11-17	10-35	30-60	25-35	1.30-1.50	1.40-14.00	0.04-0.14	0.0-3.0	0.5-3.0	.10	.32			
	17-21	---	---	---	---	---	---	---	---	---	---			
Ritner---------------	0-1	---	---	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	7	38
	1-6	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.14-0.22	0.0-2.9	3.0-7.0	.10	.15			
	6-16	10-20	40-63	30-40	1.20-1.30	4.00-14.00	0.10-0.20	3.0-5.9	1.0-4.0	.10	.24			
	16-25	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.8-3.0	.10	.24			
	25-39	10-20	30-55	35-50	1.30-1.50	1.40-14.00	0.04-0.15	3.0-5.9	0.5-2.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---	---	---			
177:														
Woodburn-------------	0-9	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	9-17	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	17-25	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.3-1.0	.49	.49			
	25-32	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.2-0.6	.55	.55			
	32-39	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.2-0.4	.55	.55			
	39-54	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	54-68	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
	68-80	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			
	80-92	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			
178:														
Woodburn-------------	0-9	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	9-17	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	17-25	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.3-1.0	.49	.49			
	25-32	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.2-0.6	.55	.55			
	32-39	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.2-0.4	.55	.55			
	39-54	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	54-68	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
	68-80	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			
	80-92	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			

Table 23.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*					
179:														
Woodburn-------------	0-9	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	9-17	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	17-25	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.3-1.0	.49	.49			
	25-32	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.2-0.6	.55	.55			
	32-39	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.2-0.4	.55	.55			
	39-54	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	54-68	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
	68-80	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			
	80-92	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			
180:														
Woodburn-------------	0-9	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.19-0.24	0.5-2.9	2.5-6.5	.32	.32	5	6	48
	9-17	2-25	60-80	15-25	1.25-1.45	4.00-14.00	0.18-0.23	0.5-2.9	1.5-4.5	.37	.37			
	17-25	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.3-1.0	.49	.49			
	25-32	2-20	60-75	20-35	1.30-1.55	1.40-14.00	0.19-0.21	1.0-5.9	0.2-0.6	.55	.55			
	32-39	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.2-0.4	.55	.55			
	39-54	2-25	60-75	20-35	1.25-1.45	1.40-14.00	0.19-0.21	1.5-5.9	0.1-0.3	.55	.55			
	54-68	5-25	50-75	15-30	1.25-1.45	4.00-14.00	0.19-0.21	1.5-5.9	0.1-0.2	.55	.55			
	68-80	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			
	80-92	30-60	25-60	10-20	1.25-1.55	4.00-42.00	0.13-0.21	0.0-2.9	0.0-0.1	.49	.49			

Table 24.--Chemical Soil Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1:								
Abiqua---------------	0-6	25-35	---	5.1-6.0	0	0	0	0
	6-15	25-35	---	5.1-6.0	0	0	0	0
	15-25	25-40	---	5.1-6.0	0	0	0	0
	25-36	25-50	---	5.1-6.0	0	0	0	0
	36-44	25-50	---	5.1-6.0	0	0	0	0
	44-60	25-50	---	5.1-6.0	0	0	0	0
2:								
Abiqua---------------	0-6	25-35	---	5.1-6.0	0	0	0	0
	6-15	25-35	---	5.1-6.0	0	0	0	0
	15-25	25-40	---	5.1-6.0	0	0	0	0
	25-36	25-50	---	5.1-6.0	0	0	0	0
	36-44	25-50	---	5.1-6.0	0	0	0	0
	44-60	25-50	---	5.1-6.0	0	0	0	0
3:								
Abiqua, high precipitation-------	0-6	25-35	---	5.1-6.0	0	0	0	0
	6-15	25-35	---	5.1-6.0	0	0	0	0
	15-25	25-40	---	5.1-6.0	0	0	0	0
	25-36	25-50	---	5.1-6.0	0	0	0	0
	36-44	25-50	---	5.1-6.0	0	0	0	0
	44-60	25-50	---	5.1-6.0	0	0	0	0
4:								
Abiqua, high precipitation-------	0-6	25-35	---	5.1-6.0	0	0	0	0
	6-15	25-35	---	5.1-6.0	0	0	0	0
	15-25	25-40	---	5.1-6.0	0	0	0	0
	25-36	25-50	---	5.1-6.0	0	0	0	0
	36-44	25-50	---	5.1-6.0	0	0	0	0
	44-60	25-50	---	5.1-6.0	0	0	0	0
5:								
Abiqua, rarely flooded-------------	0-6	25-35	---	5.1-6.0	0	0	0	0
	6-15	25-35	---	5.1-6.0	0	0	0	0
	15-25	25-40	---	5.1-6.0	0	0	0	0
	25-36	25-50	---	5.1-6.0	0	0	0	0
	36-44	25-50	---	5.1-6.0	0	0	0	0
	44-60	25-50	---	5.1-6.0	0	0	0	0
6:								
Alsea----------------	0-8	20-40	---	5.6-6.0	0	0	0	0
	8-12	20-35	---	5.6-6.0	0	0	0	0
	12-16	20-35	---	5.6-6.0	0	0	0	0
	16-25	20-35	---	5.1-6.0	0	0	0	0
	25-34	20-35	---	5.1-6.0	0	0	0	0
	34-52	15-35	---	5.1-6.0	0	0	0	0
	52-67	10-25	---	5.1-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
7:								
Alsea, rarely flooded	0-8	20-40	---	5.6-6.0	0	0	0	0
	8-12	20-35	---	5.6-6.0	0	0	0	0
	12-16	20-35	---	5.6-6.0	0	0	0	0
	16-25	20-35	---	5.1-6.0	0	0	0	0
	25-34	20-35	---	5.1-6.0	0	0	0	0
	34-52	15-35	---	5.1-6.0	0	0	0	0
	52-67	10-25	---	5.1-6.0	0	0	0	0
8:								
Amity----------------	0-7	15-25	---	5.1-6.0	0	0	0	0
	7-16	15-25	---	5.1-6.0	0	0	0	0
	16-22	12-23	---	5.1-6.5	0	0	0	0
	22-28	15-35	---	5.6-7.3	0	0	0	0
	28-35	15-35	---	5.6-7.3	0	0	0	0
	35-72	20-30	---	6.1-7.3	0	0	0	0
9:								
Apt------------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	20-35	5.0-20	4.5-5.5	0	0	0	0
	6-11	25-30	5.0-20	4.5-5.5	0	0	0	0
	11-18	20-35	1.0-20	4.5-5.5	0	0	0	0
	18-27	20-35	1.0-20	4.5-5.5	0	0	0	0
	27-37	20-55	1.0-20	4.5-5.5	0	0	0	0
	37-51	20-55	1.0-20	4.5-5.5	0	0	0	0
	51-66	20-30	1.0-20	4.5-5.5	0	0	0	0
McDuff---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	30-50	5.0-20	4.5-5.5	0	0	0	0
	9-17	25-45	5.0-20	4.5-5.5	0	0	0	0
	17-23	35-60	1.0-20	4.5-5.5	0	0	0	0
	23-30	35-60	1.0-20	4.5-5.5	0	0	0	0
	30-37	35-55	1.0-20	4.5-5.5	0	0	0	0
	37-47	---	---	---	---	---	---	---
10:								
Apt------------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	20-35	5.0-20	4.5-5.5	0	0	0	0
	6-11	25-30	5.0-20	4.5-5.5	0	0	0	0
	11-18	20-35	1.0-20	4.5-5.5	0	0	0	0
	18-27	20-35	1.0-20	4.5-5.5	0	0	0	0
	27-37	20-55	1.0-20	4.5-5.5	0	0	0	0
	37-51	20-55	1.0-20	4.5-5.5	0	0	0	0
	51-66	20-30	1.0-20	4.5-5.5	0	0	0	0
McDuff---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	30-50	5.0-20	4.5-5.5	0	0	0	0
	9-17	25-45	5.0-20	4.5-5.5	0	0	0	0
	17-23	35-60	1.0-20	4.5-5.5	0	0	0	0
	23-30	35-60	1.0-20	4.5-5.5	0	0	0	0
	30-37	35-55	1.0-20	4.5-5.5	0	0	0	0
	37-47	---	---	---	---	---	---	---
11:								
Aquents--------------	0-10	12-23	---	5.1-6.5	0	0	0	0
	10-40	15-45	---	5.1-7.3	0	0	0	0
	40-60	20-55	---	5.1-7.3	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
12:								
Awbrig---------------	0-2	20-35	---	5.1-6.5	0	0	0	0
	2-7	20-35	---	5.1-6.5	0	0	0	0
	7-18	35-55	---	6.1-7.3	0	0	0	0
	18-29	35-55	---	6.1-7.3	0	0	0	0
	29-48	30-40	---	6.6-7.3	0	0	0	0
	48-60	25-35	---	6.6-7.3	0	0	0	0
13:								
Bashaw, nonflooded---	0-3	40-65	---	5.1-6.0	0	0	0	0
	3-14	35-55	---	5.6-7.3	0	0	0	0
	14-31	35-55	---	5.6-7.3	0	0	0	0
	31-48	35-55	---	5.6-7.3	0	0	0	0
	48-60	35-55	---	6.1-7.8	0	0	0	0
14:								
Bashaw, flooded------	0-3	40-65	---	5.1-6.0	0	0	0	0
	3-14	35-55	---	5.6-7.3	0	0	0	0
	14-31	35-55	---	5.6-7.3	0	0	0	0
	31-48	35-55	---	5.6-7.3	0	0	0	0
	48-60	35-55	---	6.1-7.8	0	0	0	0
15:								
Bashaw, nonflooded---	0-3	40-65	---	5.1-6.0	0	0	0	0
	3-14	35-55	---	5.6-7.3	0	0	0	0
	14-31	35-55	---	5.6-7.3	0	0	0	0
	31-48	35-55	---	5.6-7.3	0	0	0	0
	48-60	35-55	---	6.1-7.8	0	0	0	0
16:								
Bashaw, nonflooded---	0-3	40-65	---	5.1-6.0	0	0	0	0
	3-14	35-55	---	5.6-7.3	0	0	0	0
	14-31	35-55	---	5.6-7.3	0	0	0	0
	31-48	35-55	---	5.6-7.3	0	0	0	0
	48-60	35-55	---	6.1-7.8	0	0	0	0
17:								
Bellpine-------------	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-10	15-25	---	5.1-6.0	0	0	0	0
	10-20	12-25	---	4.5-6.0	0	0	0	0
	20-26	12-25	---	4.5-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---
Jory, sedimentary bedrock-------------	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
18:								
Bellpine-------------	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-10	15-25	---	5.1-6.0	0	0	0	0
	10-20	12-25	---	4.5-6.0	0	0	0	0
	20-26	12-25	---	4.5-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
18:								
Jory, sedimentary bedrock-------------	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
19:								
Bellpine-------------	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-10	15-25	---	5.1-6.0	0	0	0	0
	10-20	12-25	---	4.5-6.0	0	0	0	0
	20-26	12-25	---	4.5-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---
Jory, sedimentary bedrock-------------	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
20:								
Bellpine-------------	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-10	15-25	---	5.1-6.0	0	0	0	0
	10-20	12-25	---	4.5-6.0	0	0	0	0
	20-26	12-25	---	4.5-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---
Jory, sedimentary bedrock-------------	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
21:								
Blachly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	20-40	---	4.5-5.5	0	0	0	0
	7-16	20-40	---	4.5-5.5	0	0	0	0
	16-27	25-45	---	4.5-5.5	0	0	0	0
	27-54	25-40	---	4.5-5.5	0	0	0	0
	54-65	25-35	---	4.5-5.5	0	0	0	0
	65-96	25-30	---	4.5-5.5	0	0	0	0
Kilowan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-8	30-50	---	4.5-5.5	0	0	0	0
	8-14	25-45	---	4.5-5.5	0	0	0	0
	14-23	25-40	---	4.5-5.5	0	0	0	0
	23-31	25-40	---	4.5-5.5	0	0	0	0
	31-41	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
22:								
Blachly-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	20-40	---	4.5-5.5	0	0	0	0
	7-16	20-40	---	4.5-5.5	0	0	0	0
	16-27	25-45	---	4.5-5.5	0	0	0	0
	27-54	25-40	---	4.5-5.5	0	0	0	0
	54-65	25-35	---	4.5-5.5	0	0	0	0
	65-96	25-30	---	4.5-5.5	0	0	0	0
Kilowan-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-8	30-50	---	4.5-5.5	0	0	0	0
	8-14	25-45	---	4.5-5.5	0	0	0	0
	14-23	25-40	---	4.5-5.5	0	0	0	0
	23-31	25-40	---	4.5-5.5	0	0	0	0
	31-41	---	---	---	---	---	---	---
23:								
Bohannon------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	20-40	---	4.5-5.5	0	0	0	0
	19-27	20-35	---	4.5-5.5	0	0	0	0
	27-34	15-30	---	4.5-5.5	0	0	0	0
	34-44	---	---	---	---	---	---	---
Preacher------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-12	40-60	---	4.5-5.5	0	0	0	0
	12-18	20-40	---	4.5-5.5	0	0	0	0
	18-29	20-40	---	4.5-5.5	0	0	0	0
	29-44	20-35	---	4.5-5.5	0	0	0	0
	44-53	10-30	---	4.5-5.5	0	0	0	0
	53-63	---	---	---	---	---	---	---
24:								
Bohannon------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	20-40	---	4.5-5.5	0	0	0	0
	19-27	20-35	---	4.5-5.5	0	0	0	0
	27-34	15-30	---	4.5-5.5	0	0	0	0
	34-44	---	---	---	---	---	---	---
Preacher------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-12	40-60	---	4.5-5.5	0	0	0	0
	12-18	20-40	---	4.5-5.5	0	0	0	0
	18-29	20-40	---	4.5-5.5	0	0	0	0
	29-44	20-35	---	4.5-5.5	0	0	0	0
	44-53	10-30	---	4.5-5.5	0	0	0	0
	53-63	---	---	---	---	---	---	---
25:								
Briedwell-----------	0-7	20-30	---	5.1-6.5	0	0	0	0
	7-17	15-25	---	5.6-6.5	0	0	0	0
	17-30	15-25	---	5.6-6.5	0	0	0	0
	30-60	15-25	---	5.6-6.5	0	0	0	0
26:								
Briedwell-----------	0-7	20-30	---	5.1-6.5	0	0	0	0
	7-17	15-25	---	5.6-6.5	0	0	0	0
	17-30	15-25	---	5.6-6.5	0	0	0	0
	30-60	15-25	---	5.6-6.5	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
27:								
Burntwoods-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-3	---	30-40	3.5-5.5	0	0	0	0
	3-12	40-60	---	4.5-5.5	0	0	0	0
	12-19	40-60	---	4.5-5.5	0	0	0	0
	19-27	25-35	---	4.5-5.5	0	0	0	0
	27-41	20-35	---	4.5-5.5	0	0	0	0
	41-53	20-30	---	4.5-5.5	0	0	0	0
	53-67	20-25	---	4.5-5.5	0	0	0	0
Oldblue--------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-6	40-60	---	4.5-5.5	0	0	0	0
	6-12	40-60	---	4.5-5.5	0	0	0	0
	12-21	30-50	---	4.5-5.5	0	0	0	0
	21-38	20-35	---	4.5-5.5	0	0	0	0
	38-75	20-30	---	4.5-5.5	0	0	0	0
	75-85	---	---	---	---	---	---	---
28:								
Camas----------------	0-2	15-25	---	5.6-7.3	0	0	0	0
	2-10	15-25	---	5.6-7.3	0	0	0	0
	10-13	5.0-20	---	5.6-7.3	0	0	0	0
	13-60	5.0-20	---	5.6-7.3	0	0	0	0
29:								
Camas, rarely flooded-------------	0-7	15-25	---	5.6-7.3	0	0	0	0
	7-10	15-25	---	5.6-7.3	0	0	0	0
	10-60	5.0-20	---	5.6-7.3	0	0	0	0
30:								
Caterl---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	40-60	---	4.5-5.5	0	0	0	0
	9-18	40-60	---	4.5-5.5	0	0	0	0
	18-37	30-50	---	4.5-5.5	0	0	0	0
	37-55	20-40	---	4.5-5.5	0	0	0	0
	55-59	---	---	---	---	---	---	---
Laderly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-29	30-50	---	4.5-5.5	0	0	0	0
	29-37	30-50	---	4.5-5.5	0	0	0	0
	37-41	---	---	---	---	---	---	---
Romanose-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	40-60	---	4.5-5.5	0	0	0	0
	7-11	30-50	---	4.5-5.5	0	0	0	0
	11-16	20-40	---	4.5-5.5	0	0	0	0
	16-20	---	---	---	---	---	---	---
31:								
Caterl---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	40-60	---	4.5-5.5	0	0	0	0
	9-18	40-60	---	4.5-5.5	0	0	0	0
	18-37	30-50	---	4.5-5.5	0	0	0	0
	37-55	20-40	---	4.5-5.5	0	0	0	0
	55-59	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
31:								
Laderly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-29	30-50	---	4.5-5.5	0	0	0	0
	29-37	30-50	---	4.5-5.5	0	0	0	0
	37-41	---	---	---	---	---	---	---
Romanose-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	40-60	---	4.5-5.5	0	0	0	0
	7-11	30-50	---	4.5-5.5	0	0	0	0
	11-16	20-40	---	4.5-5.5	0	0	0	0
	16-20	---	---	---	---	---	---	---
32:								
Caterl---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	40-60	---	4.5-5.5	0	0	0	0
	9-18	40-60	---	4.5-5.5	0	0	0	0
	18-37	30-50	---	4.5-5.5	0	0	0	0
	37-55	20-40	---	4.5-5.5	0	0	0	0
	55-59	---	---	---	---	---	---	---
Murtip---------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-19	40-60	---	4.5-5.5	0	0	0	0
	19-31	30-50	---	4.5-5.5	0	0	0	0
	31-45	30-50	---	4.5-5.5	0	0	0	0
	45-56	20-40	---	4.5-5.5	0	0	0	0
	56-66	---	---	---	---	---	---	---
Giveout--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-16	40-60	---	4.5-5.5	0	0	0	0
	16-28	30-50	---	4.5-5.5	0	0	0	0
	28-36	30-50	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
33:								
Caterl---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	40-60	---	4.5-5.5	0	0	0	0
	9-18	40-60	---	4.5-5.5	0	0	0	0
	18-37	30-50	---	4.5-5.5	0	0	0	0
	37-55	20-40	---	4.5-5.5	0	0	0	0
	55-59	---	---	---	---	---	---	---
Murtip---------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-19	40-60	---	4.5-5.5	0	0	0	0
	19-31	30-50	---	4.5-5.5	0	0	0	0
	31-45	30-50	---	4.5-5.5	0	0	0	0
	45-56	20-40	---	4.5-5.5	0	0	0	0
	56-66	---	---	---	---	---	---	---
Laderly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-29	30-50	---	4.5-5.5	0	0	0	0
	29-37	30-50	---	4.5-5.5	0	0	0	0
	37-41	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
34:								
Chapman-------------	0-8	20-30	---	5.6-6.5	0	0	0	0
	8-14	20-35	---	5.6-6.5	0	0	0	0
	14-23	20-35	---	5.6-6.5	0	0	0	0
	23-33	20-35	---	6.1-7.3	0	0	0	0
	33-42	20-35	---	6.1-7.3	0	0	0	0
	42-50	10-20	---	6.1-7.3	0	0	0	0
	50-60	5.0-15	---	6.1-7.3	0	0	0	0
35:								
Chapman, high precipitation-------	0-8	20-30	---	5.6-6.5	0	0	0	0
	8-14	20-35	---	5.6-6.5	0	0	0	0
	14-23	20-35	---	5.6-6.5	0	0	0	0
	23-33	20-35	---	6.1-7.3	0	0	0	0
	33-42	20-35	---	6.1-7.3	0	0	0	0
	42-50	10-20	---	6.1-7.3	0	0	0	0
	50-60	5.0-15	---	6.1-7.3	0	0	0	0
36:								
Chehalem-------------	0-7	25-35	---	5.6-6.5	0	0	0	0
	7-11	25-35	---	5.6-6.5	0	0	0	0
	11-23	25-40	---	5.6-6.5	0	0	0	0
	23-36	25-45	---	5.6-6.5	0	0	0	0
	36-49	25-45	---	5.6-6.5	0	0	0	0
	49-60	25-45	---	5.6-6.5	0	0	0	0
37:								
Chehalem-------------	0-7	25-35	---	5.6-6.5	0	0	0	0
	7-11	25-35	---	5.6-6.5	0	0	0	0
	11-23	25-40	---	5.6-6.5	0	0	0	0
	23-36	25-45	---	5.6-6.5	0	0	0	0
	36-49	25-45	---	5.6-6.5	0	0	0	0
	49-60	25-45	---	5.6-6.5	0	0	0	0
38:								
Chehalis-------------	0-7	20-32	---	5.6-6.5	0	0	0	0
	7-24	20-35	---	5.6-6.5	0	0	0	0
	24-44	20-35	---	5.6-7.3	0	0	0	0
	44-60	10-35	---	5.6-7.3	0	0	0	0
39:								
Chehalis, high precipitation-------	0-7	20-32	---	5.6-6.5	0	0	0	0
	7-24	20-35	---	5.6-6.5	0	0	0	0
	24-44	20-35	---	5.6-7.3	0	0	0	0
	44-60	10-35	---	5.6-7.3	0	0	0	0
40:								
Chehalis-------------	0-8	25-35	---	5.6-6.5	0	0	0	0
	8-16	25-35	---	5.6-6.5	0	0	0	0
	16-38	20-35	---	5.6-7.3	0	0	0	0
	38-45	20-35	---	5.6-7.3	0	0	0	0
	45-60	10-35	---	5.6-7.3	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
41:								
Chintimini-----------	0-4	---	30-40	3.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-20	35-55	---	4.5-5.5	0	0	0	0
	20-38	15-35	---	4.5-5.5	0	0	0	0
	38-47	15-30	---	4.5-5.5	0	0	0	0
	47-51	---	---	---	---	---	---	---
	51-55	---	---	---	---	---	---	---
Blodgett-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	40-60	---	4.5-5.5	0	0	0	0
	6-11	15-25	---	4.5-5.5	0	0	0	0
	11-16	5.0-20	---	4.5-5.5	0	0	0	0
	16-19	---	---	---	---	---	---	---
	19-23	---	---	---	---	---	---	---
42:								
Chintimini-----------	0-4	---	30-40	3.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-20	35-55	---	4.5-5.5	0	0	0	0
	20-38	15-35	---	4.5-5.5	0	0	0	0
	38-47	15-30	---	4.5-5.5	0	0	0	0
	47-51	---	---	---	---	---	---	---
	51-55	---	---	---	---	---	---	---
Blodgett-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	40-60	---	4.5-5.5	0	0	0	0
	6-11	15-25	---	4.5-5.5	0	0	0	0
	11-16	5.0-20	---	4.5-5.5	0	0	0	0
	16-19	---	---	---	---	---	---	---
	19-23	---	---	---	---	---	---	---
Fiverivers-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	35-55	---	4.5-5.5	0	0	0	0
	9-15	20-35	---	4.5-5.5	0	0	0	0
	15-25	20-35	---	4.5-5.5	0	0	0	0
	25-36	20-30	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
43:								
Chintimini-----------	0-4	---	30-40	3.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-20	35-55	---	4.5-5.5	0	0	0	0
	20-38	15-35	---	4.5-5.5	0	0	0	0
	38-47	15-30	---	4.5-5.5	0	0	0	0
	47-51	---	---	---	---	---	---	---
	51-55	---	---	---	---	---	---	---
Grassmountain--------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	40-60	---	4.5-5.5	0	0	0	0
	7-15	30-50	---	4.5-5.5	0	0	0	0
	15-29	20-35	---	4.5-5.5	0	0	0	0
	29-44	20-30	---	4.5-5.5	0	0	0	0
	44-69	20-25	---	4.5-5.5	0	0	0	0
	69-79	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
44:								
Chismore-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	15-25	---	4.5-5.5	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-22	15-30	---	4.5-5.5	0	0	0	0
	22-30	15-25	---	4.5-5.5	0	0	0	0
	30-43	15-25	---	4.5-5.5	0	0	0	0
	43-66	15-25	---	4.5-5.5	0	0	0	0
Pyburn---------------	0-13	30-45	---	4.5-6.0	0	0	0	0
	13-20	25-35	---	4.5-6.0	0	0	0	0
	20-36	15-30	---	4.5-6.0	0	0	0	0
	36-48	25-45	---	4.5-6.0	0	0	0	0
	48-66	15-30	---	4.5-6.0	0	0	0	0
45:								
Chismore-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	15-25	---	4.5-5.5	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-22	15-30	---	4.5-5.5	0	0	0	0
	22-30	15-25	---	4.5-5.5	0	0	0	0
	30-43	15-25	---	4.5-5.5	0	0	0	0
	43-66	15-25	---	4.5-5.5	0	0	0	0
Pyburn---------------	0-13	30-45	---	4.5-6.0	0	0	0	0
	13-20	25-35	---	4.5-6.0	0	0	0	0
	20-36	15-30	---	4.5-6.0	0	0	0	0
	36-48	25-45	---	4.5-6.0	0	0	0	0
	48-66	15-30	---	4.5-6.0	0	0	0	0
46:								
Cloquato-------------	0-7	10-30	---	5.6-6.5	0	0	0	0
	7-12	10-30	---	5.6-6.5	0	0	0	0
	12-40	10-20	---	6.1-7.3	0	0	0	0
	40-52	5.0-15	---	6.1-7.3	0	0	0	0
	52-72	2.0-15	---	6.1-7.3	0	0	0	0
47:								
Cloquato, high precipitation-------	0-7	10-30	---	5.6-6.5	0	0	0	0
	7-12	10-30	---	5.6-6.5	0	0	0	0
	12-40	10-20	---	6.1-7.3	0	0	0	0
	40-52	5.0-15	---	6.1-7.3	0	0	0	0
	52-72	2.0-15	---	6.1-7.3	0	0	0	0
48:								
Coburg, occasionally flooded-------------	0-10	25-35	---	5.6-6.5	0	0	0	0
	10-18	25-35	---	5.6-6.5	0	0	0	0
	18-28	25-40	---	5.6-6.5	0	0	0	0
	28-43	25-40	---	5.6-7.3	0	0	0	0
	43-60	25-40	---	5.6-7.3	0	0	0	0
Coburg, rarely flooded-------------	0-9	25-35	---	5.6-6.5	0	0	0	0
	9-15	25-35	---	5.6-6.5	0	0	0	0
	15-24	25-40	---	5.6-7.3	0	0	0	0
	24-33	25-40	---	5.6-7.3	0	0	0	0
	33-41	25-40	---	5.6-7.3	0	0	0	0
	41-60	25-40	---	6.1-7.3	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
49:								
Coburg---------------	0-7	25-35	---	5.6-6.5	0	0	0	0
	7-18	25-40	---	5.6-6.5	0	0	0	0
	18-28	25-40	---	5.6-7.3	0	0	0	0
	28-41	25-40	---	5.6-7.3	0	0	0	0
	41-53	25-40	---	5.6-7.3	0	0	0	0
	53-65	10-30	---	6.1-7.3	0	0	0	0
50:								
Coburg, rarely flooded-------------	0-9	25-35	---	5.6-6.5	0	0	0	0
	9-15	25-35	---	5.6-6.5	0	0	0	0
	15-24	25-40	---	5.6-7.3	0	0	0	0
	24-33	25-40	---	5.6-7.3	0	0	0	0
	33-41	25-40	---	5.6-7.3	0	0	0	0
	41-60	25-40	---	6.1-7.3	0	0	0	0
51:								
Concord--------------	0-6	13-20	---	4.5-6.0	0	0	0	0
	6-9	12-23	---	4.5-6.0	0	0	0	0
	9-15	12-23	---	4.5-6.0	0	0	0	0
	15-19	25-40	---	5.1-6.5	0	0	0	0
	19-24	30-40	---	5.1-6.5	0	0	0	0
	24-29	30-40	---	5.6-7.3	0	0	0	0
	29-60	20-30	---	6.1-7.3	0	0	0	0
52:								
Conser---------------	0-9	25-40	---	5.6-6.5	0	0	0	0
	9-14	25-50	---	5.6-6.5	0	0	0	0
	14-27	25-50	---	5.6-6.5	0	0	0	0
	27-41	25-50	---	5.6-6.5	0	0	0	0
	41-49	10-30	---	6.1-7.3	0	0	0	0
	49-60	10-30	---	6.1-7.3	0	0	0	0
53:								
Dayton---------------	0-9	13-20	---	4.5-6.0	0	0	0	0
	9-12	12-23	---	4.5-6.0	0	0	0	0
	12-15	12-23	---	4.5-6.0	0	0	0	0
	15-22	30-40	---	5.1-6.5	0	0	0	0
	22-29	30-40	---	5.1-6.5	0	0	0	0
	29-40	30-40	---	5.6-7.3	0	0	0	0
	40-53	15-35	---	5.6-7.3	0	0	0	0
	53-64	20-30	---	6.1-7.3	0	0	0	0
	64-76	20-30	---	6.1-7.3	0	0	0	0
54:								
Dayton, clay substratum----------	0-7	12-25	5.0-15	4.5-6.0	0	0	0	0
	7-12	12-25	5.0-15	4.5-6.0	0	0	0	0
	12-16	12-25	5.0-15	4.5-6.0	0	0	0	0
	16-30	30-45	25-35	5.1-6.0	0	0	0	0
	30-45	30-45	25-35	5.1-6.0	0	0	0	0
	45-60	30-45	25-35	5.1-6.5	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
55:								
Digger	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	20-35	---	5.1-6.0	0	0	0	0
	4-16	15-30	---	5.1-6.0	0	0	0	0
	16-30	15-25	---	5.1-6.0	0	0	0	0
	30-38	15-25	---	5.1-6.0	0	0	0	0
	38-48	---	---	---	---	---	---	---
	48-52	---	---	---	---	---	---	---
Bohannon	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	20-40	---	4.5-5.5	0	0	0	0
	19-27	20-35	---	4.5-5.5	0	0	0	0
	27-34	15-30	---	4.5-5.5	0	0	0	0
	34-44	---	---	---	---	---	---	---
56:								
Digger	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	20-35	---	5.1-6.0	0	0	0	0
	4-16	15-30	---	5.1-6.0	0	0	0	0
	16-30	15-25	---	5.1-6.0	0	0	0	0
	30-38	15-25	---	5.1-6.0	0	0	0	0
	38-48	---	---	---	---	---	---	---
	48-52	---	---	---	---	---	---	---
Remote	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-5	20-35	---	5.1-6.0	0	0	0	0
	5-17	15-35	---	5.1-6.0	0	0	0	0
	17-33	15-30	---	5.1-6.0	0	0	0	0
	33-42	15-30	---	5.1-6.0	0	0	0	0
	42-72	15-25	---	5.1-6.0	0	0	0	0
Umpcoos	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-5	20-30	---	5.1-6.0	0	0	0	0
	5-12	15-30	---	5.1-6.0	0	0	0	0
	12-16	15-25	---	5.1-6.0	0	0	0	0
	16-20	---	---	---	---	---	---	---
57:								
Digger	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	20-35	---	5.1-6.0	0	0	0	0
	4-16	15-30	---	5.1-6.0	0	0	0	0
	16-30	15-25	---	5.1-6.0	0	0	0	0
	30-38	15-25	---	5.1-6.0	0	0	0	0
	38-48	---	---	---	---	---	---	---
	48-52	---	---	---	---	---	---	---
Umpcoos	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-5	20-30	---	5.1-6.0	0	0	0	0
	5-12	15-30	---	5.1-6.0	0	0	0	0
	12-16	15-25	---	5.1-6.0	0	0	0	0
	16-20	---	---	---	---	---	---	---
Remote	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-5	20-35	---	5.1-6.0	0	0	0	0
	5-17	15-35	---	5.1-6.0	0	0	0	0
	17-33	15-30	---	5.1-6.0	0	0	0	0
	33-42	15-30	---	5.1-6.0	0	0	0	0
	42-72	15-25	---	5.1-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
58:								
Dixonville-----------	0-4	35-60	---	5.6-6.5	0	0	0	0
	4-12	35-65	---	5.6-6.5	0	0	0	0
	12-21	40-65	---	5.6-6.5	0	0	0	0
	21-34	40-65	---	5.6-7.3	0	0	0	0
	34-44	---	---	---	---	---	---	---
Gellatly-------------	0-8	35-60	---	5.6-6.5	0	0	0	0
	8-14	35-65	---	5.6-6.5	0	0	0	0
	14-29	40-65	---	5.6-6.5	0	0	0	0
	29-45	30-65	---	6.1-7.3	0	0	0	0
	45-61	30-65	---	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---	---
59:								
Dixonville-----------	0-4	35-60	---	5.6-6.5	0	0	0	0
	4-12	35-65	---	5.6-6.5	0	0	0	0
	12-21	40-65	---	5.6-6.5	0	0	0	0
	21-34	40-65	---	5.6-7.3	0	0	0	0
	34-44	---	---	---	---	---	---	---
Gellatly-------------	0-8	35-60	---	5.6-6.5	0	0	0	0
	8-14	35-65	---	5.6-6.5	0	0	0	0
	14-29	40-65	---	5.6-6.5	0	0	0	0
	29-45	30-65	---	6.1-7.3	0	0	0	0
	45-61	30-65	---	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---	---
60:								
Dixonville-----------	0-4	35-60	---	5.6-6.5	0	0	0	0
	4-12	35-65	---	5.6-6.5	0	0	0	0
	12-21	40-65	---	5.6-6.5	0	0	0	0
	21-34	40-65	---	5.6-7.3	0	0	0	0
	34-44	---	---	---	---	---	---	---
Gellatly-------------	0-8	35-60	---	5.6-6.5	0	0	0	0
	8-14	35-65	---	5.6-6.5	0	0	0	0
	14-29	40-65	---	5.6-6.5	0	0	0	0
	29-45	30-65	---	6.1-7.3	0	0	0	0
	45-61	30-65	---	6.1-7.3	0	0	0	0
	61-71	---	---	---	---	---	---	---
Witham---------------	0-4	30-45	---	5.1-6.5	0	0	0	0
	4-12	35-65	---	5.1-6.5	0	0	0	0
	12-21	35-65	---	5.6-6.5	0	0	0	0
	21-29	35-65	---	5.6-6.5	0	0	0	0
	29-60	35-65	---	5.6-6.5	0	0	0	0
61:								
Dupee----------------	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
62:								
Dupee----------------	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0
63:								
Elsie----------------	0-8	25-45	---	3.5-5.5	0	0	0	0
	8-15	20-40	---	3.5-5.5	0	0	0	0
	15-22	15-30	---	3.5-5.5	0	0	0	0
	22-35	20-30	---	3.5-5.5	0	0	0	0
	35-53	20-30	---	3.5-5.5	0	0	0	0
	53-67	15-25	---	3.5-5.5	0	0	0	0
64:								
Elsie----------------	0-8	25-45	---	3.5-5.5	0	0	0	0
	8-15	20-40	---	3.5-5.5	0	0	0	0
	15-22	15-30	---	3.5-5.5	0	0	0	0
	22-35	20-30	---	3.5-5.5	0	0	0	0
	35-53	20-30	---	3.5-5.5	0	0	0	0
	53-67	15-25	---	3.5-5.5	0	0	0	0
65:								
Fiverivers-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	35-55	---	4.5-5.5	0	0	0	0
	9-15	20-35	---	4.5-5.5	0	0	0	0
	15-25	20-35	---	4.5-5.5	0	0	0	0
	25-36	20-30	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
Grassmountain--------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	40-60	---	4.5-5.5	0	0	0	0
	7-15	30-50	---	4.5-5.5	0	0	0	0
	15-29	20-35	---	4.5-5.5	0	0	0	0
	29-44	20-30	---	4.5-5.5	0	0	0	0
	44-69	20-25	---	4.5-5.5	0	0	0	0
	69-79	---	---	---	---	---	---	---
Chintimini-----------	0-4	---	30-40	3.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-20	35-55	---	4.5-5.5	0	0	0	0
	20-38	15-35	---	4.5-5.5	0	0	0	0
	38-47	15-30	---	4.5-5.5	0	0	0	0
	47-51	---	---	---	---	---	---	---
	51-55	---	---	---	---	---	---	---
66:								
Fluvents-------------	0-9	15-25	---	5.1-6.5	0	0	0	0
	9-27	15-25	---	5.1-6.5	0	0	0	0
	27-35	15-25	---	5.1-6.5	0	0	0	0
	35-60	5.0-20	---	5.1-7.3	0	0	0	0
Fluvaquents----------	0-8	15-35	---	5.1-6.5	0	0	0	0
	8-24	15-35	---	5.1-6.5	0	0	0	0
	24-60	15-25	---	5.1-7.3	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
67:								
Fluvents, high precipitation-------	0-9	15-25	---	5.1-6.5	0	0	0	0
	9-27	15-25	---	5.1-6.5	0	0	0	0
	27-35	15-25	---	5.1-6.5	0	0	0	0
	35-60	5.0-20	---	5.1-7.3	0	0	0	0
Fluvaquents, high precipitation-------	0-8	15-35	---	5.1-6.5	0	0	0	0
	8-24	15-35	---	5.1-6.5	0	0	0	0
	24-60	15-25	---	5.1-7.3	0	0	0	0
68:								
Formader-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-27	15-35	---	4.5-5.5	0	0	0	0
	27-37	---	---	---	---	---	---	---
Hemcross-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	30-50	---	4.5-5.5	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-38	30-50	---	4.5-5.5	0	0	0	0
	38-48	20-40	---	4.5-5.5	0	0	0	0
	48-68	20-40	---	4.5-5.5	0	0	0	0
69:								
Formader-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-27	15-35	---	4.5-5.5	0	0	0	0
	27-37	---	---	---	---	---	---	---
Hemcross-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	30-50	---	4.5-5.5	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-38	30-50	---	4.5-5.5	0	0	0	0
	38-48	20-40	---	4.5-5.5	0	0	0	0
	48-68	20-40	---	4.5-5.5	0	0	0	0
70:								
Formader-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-27	15-35	---	4.5-5.5	0	0	0	0
	27-37	---	---	---	---	---	---	---
Klistan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-17	40-60	---	4.5-5.5	0	0	0	0
	17-25	30-50	---	4.5-5.5	0	0	0	0
	25-43	30-50	---	4.5-5.5	0	0	0	0
	43-56	20-40	---	4.5-5.5	0	0	0	0
	56-60	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
70:								
Hemcross-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	30-50	---	4.5-5.5	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-38	30-50	---	4.5-5.5	0	0	0	0
	38-48	20-40	---	4.5-5.5	0	0	0	0
	48-68	20-40	---	4.5-5.5	0	0	0	0
71:								
Gelderman------------	0-5	15-30	---	5.1-6.0	0	0	0	0
	5-10	15-25	---	5.1-6.0	0	0	0	0
	10-24	12-25	---	4.5-6.0	0	0	0	0
	24-30	12-25	---	4.5-6.0	0	0	0	0
	30-40	---	---	---	---	---	---	---
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
72:								
Goodin---------------	0-3	25-40	---	5.1-6.0	0	0	0	0
	3-9	25-40	---	5.1-6.0	0	0	0	0
	9-16	25-50	---	5.1-6.0	0	0	0	0
	16-21	25-50	---	4.5-5.5	0	0	0	0
	21-29	25-50	---	4.5-5.5	0	0	0	0
	29-39	---	---	---	---	---	---	---
Dupee----------------	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0
Chehulpum------------	0-4	15-20	---	5.6-6.5	0	0	0	0
	4-12	10-20	---	5.6-6.5	0	0	0	0
	12-22	---	---	---	---	---	---	---
73:								
Goodin---------------	0-3	25-40	---	5.1-6.0	0	0	0	0
	3-9	25-40	---	5.1-6.0	0	0	0	0
	9-16	25-50	---	5.1-6.0	0	0	0	0
	16-21	25-50	---	4.5-5.5	0	0	0	0
	21-29	25-50	---	4.5-5.5	0	0	0	0
	29-39	---	---	---	---	---	---	---
Chehulpum------------	0-4	15-20	---	5.6-6.5	0	0	0	0
	4-12	10-20	---	5.6-6.5	0	0	0	0
	12-22	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
73:								
Dupee----------------	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0
74:								
Grassmountain--------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	40-60	---	4.5-5.5	0	0	0	0
	7-15	30-50	---	4.5-5.5	0	0	0	0
	15-29	20-35	---	4.5-5.5	0	0	0	0
	29-44	20-30	---	4.5-5.5	0	0	0	0
	44-69	20-25	---	4.5-5.5	0	0	0	0
	69-79	---	---	---	---	---	---	---
Fiverivers-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	35-55	---	4.5-5.5	0	0	0	0
	9-15	20-35	---	4.5-5.5	0	0	0	0
	15-25	20-35	---	4.5-5.5	0	0	0	0
	25-36	20-30	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
Chintimini-----------	0-4	---	30-40	3.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-20	35-55	---	4.5-5.5	0	0	0	0
	20-38	15-35	---	4.5-5.5	0	0	0	0
	38-47	15-30	---	4.5-5.5	0	0	0	0
	47-51	---	---	---	---	---	---	---
	51-55	---	---	---	---	---	---	---
75:								
Harslow--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	40-60	---	4.5-6.0	0	0	0	0
	6-11	40-60	---	4.5-6.0	0	0	0	0
	11-17	30-50	---	4.5-6.0	0	0	0	0
	17-26	30-50	---	4.5-6.0	0	0	0	0
	26-34	20-40	---	4.5-6.0	0	0	0	0
	34-38	---	---	---	---	---	---	---
Kilchis--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	40-60	---	4.5-5.5	0	0	0	0
	9-14	20-35	---	4.5-5.5	0	0	0	0
	14-17	15-30	---	4.5-5.5	0	0	0	0
	17-21	---	---	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---	---	---
76:								
Harslow--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	40-60	---	4.5-6.0	0	0	0	0
	6-11	40-60	---	4.5-6.0	0	0	0	0
	11-17	30-50	---	4.5-6.0	0	0	0	0
	17-26	30-50	---	4.5-6.0	0	0	0	0
	26-34	20-40	---	4.5-6.0	0	0	0	0
	34-38	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
76:								
Klistan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-17	40-60	---	4.5-5.5	0	0	0	0
	17-25	30-50	---	4.5-5.5	0	0	0	0
	25-43	30-50	---	4.5-5.5	0	0	0	0
	43-56	20-40	---	4.5-5.5	0	0	0	0
	56-60	---	---	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---	---	---
77:								
Hazelair-------------	0-7	12-25	---	5.6-6.5	0	0	0	0
	7-11	15-25	---	5.6-6.5	0	0	0	0
	11-18	25-35	---	5.1-6.5	0	0	0	0
	18-24	40-50	---	5.1-6.5	0	0	0	0
	24-30	40-50	---	5.1-6.5	0	0	0	0
	30-40	---	---	---	---	---	---	---
78:								
Hazelair-------------	0-7	12-25	---	5.6-6.5	0	0	0	0
	7-11	15-25	---	5.6-6.5	0	0	0	0
	11-18	25-35	---	5.1-6.5	0	0	0	0
	18-24	40-50	---	5.1-6.5	0	0	0	0
	24-30	40-50	---	5.1-6.5	0	0	0	0
	30-40	---	---	---	---	---	---	---
79:								
Hazelair-------------	0-7	12-25	---	5.6-6.5	0	0	0	0
	7-11	15-25	---	5.6-6.5	0	0	0	0
	11-18	25-35	---	5.1-6.5	0	0	0	0
	18-24	40-50	---	5.1-6.5	0	0	0	0
	24-30	40-50	---	5.1-6.5	0	0	0	0
	30-40	---	---	---	---	---	---	---
80:								
Hazelair-------------	0-4	30-45	---	5.6-6.5	0	0	0	0
	4-11	30-45	---	5.6-6.5	0	0	0	0
	11-15	40-50	---	5.1-6.5	0	0	0	0
	15-21	40-60	---	5.1-6.5	0	0	0	0
	21-36	40-60	---	5.1-6.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
81:								
Helmick--------------	0-5	12-25	---	5.6-6.0	0	0	0	0
	5-10	15-25	---	5.1-6.0	0	0	0	0
	10-16	25-35	---	5.1-6.0	0	0	0	0
	16-22	40-50	---	4.5-5.5	0	0	0	0
	22-28	40-50	---	4.5-5.5	0	0	0	0
	28-36	40-50	---	4.5-5.5	0	0	0	0
	36-50	40-50	---	4.5-5.5	0	0	0	0
	50-62	40-50	---	4.5-5.5	0	0	0	0
82:								
Helvetia-------------	0-5	12-25	---	5.6-6.5	0	0	0	0
	5-10	15-25	---	5.6-6.5	0	0	0	0
	10-16	25-35	---	5.6-6.5	0	0	0	0
	16-28	25-40	---	5.6-6.5	0	0	0	0
	28-48	25-40	---	5.1-6.5	0	0	0	0
	48-60	15-35	---	5.1-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
83:								
Hemcross-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	30-50	---	4.5-5.5	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-38	30-50	---	4.5-5.5	0	0	0	0
	38-48	20-40	---	4.5-5.5	0	0	0	0
	48-68	20-40	---	4.5-5.5	0	0	0	0
Klistan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-17	40-60	---	4.5-5.5	0	0	0	0
	17-25	30-50	---	4.5-5.5	0	0	0	0
	25-43	30-50	---	4.5-5.5	0	0	0	0
	43-56	20-40	---	4.5-5.5	0	0	0	0
	56-60	---	---	---	---	---	---	---
84:								
Hemcross-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	30-50	---	4.5-5.5	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-38	30-50	---	4.5-5.5	0	0	0	0
	38-48	20-40	---	4.5-5.5	0	0	0	0
	48-68	20-40	---	4.5-5.5	0	0	0	0
Klistan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-17	40-60	---	4.5-5.5	0	0	0	0
	17-25	30-50	---	4.5-5.5	0	0	0	0
	25-43	30-50	---	4.5-5.5	0	0	0	0
	43-56	20-40	---	4.5-5.5	0	0	0	0
	56-60	---	---	---	---	---	---	---
85:								
Holcomb--------------	0-6	15-25	---	5.6-6.5	0	0	0	0
	6-18	15-25	---	5.6-6.5	0	0	0	0
	18-24	15-25	---	5.6-6.5	0	0	0	0
	24-34	30-45	---	6.1-7.3	0	0	0	0
	34-50	30-45	---	6.1-7.3	0	0	0	0
	50-60	20-35	---	6.1-7.3	0	0	0	0
86:								
Honeygrove-----------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-6	25-40	---	4.5-5.5	0	0	0	0
	6-17	30-45	---	4.5-5.5	0	0	0	0
	17-31	30-50	---	4.5-5.5	0	0	0	0
	31-43	30-45	---	4.5-5.5	0	0	0	0
	43-56	30-45	---	4.5-5.5	0	0	0	0
	56-75	30-40	---	4.5-5.5	0	0	0	0
	75-85	---	---	---	---	---	---	---
Peavine, sedimentary bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	25-40	---	4.5-5.5	0	0	0	0
	4-17	20-45	---	4.5-5.5	0	0	0	0
	17-23	30-50	---	4.5-5.5	0	0	0	0
	23-31	30-45	---	4.5-5.5	0	0	0	0
	31-36	30-45	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
87:								
Honeygrove-----------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-6	25-40	---	4.5-5.5	0	0	0	0
	6-17	30-45	---	4.5-5.5	0	0	0	0
	17-31	30-50	---	4.5-5.5	0	0	0	0
	31-43	30-45	---	4.5-5.5	0	0	0	0
	43-56	30-45	---	4.5-5.5	0	0	0	0
	56-75	30-40	---	4.5-5.5	0	0	0	0
	75-85	---	---	---	---	---	---	---
Peavine, sedimentary bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	25-40	---	4.5-5.5	0	0	0	0
	4-17	20-45	---	4.5-5.5	0	0	0	0
	17-23	30-50	---	4.5-5.5	0	0	0	0
	23-31	30-45	---	4.5-5.5	0	0	0	0
	31-36	30-45	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
88:								
Honeygrove, basalt bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	25-40	---	4.5-5.5	0	0	0	0
	9-15	30-45	---	4.5-5.5	0	0	0	0
	15-22	30-50	---	4.5-5.5	0	0	0	0
	22-37	30-45	---	4.5-5.5	0	0	0	0
	37-50	30-45	---	4.5-5.5	0	0	0	0
	50-67	30-40	---	4.5-5.5	0	0	0	0
Peavine, basalt bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	25-40	---	4.5-5.5	0	0	0	0
	6-13	20-45	---	4.5-5.5	0	0	0	0
	13-32	30-50	---	4.5-5.5	0	0	0	0
	32-37	30-45	---	4.5-5.5	0	0	0	0
	37-47	---	---	---	---	---	---	---
89:								
Honeygrove, basalt bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	25-40	---	4.5-5.5	0	0	0	0
	9-15	30-45	---	4.5-5.5	0	0	0	0
	15-22	30-50	---	4.5-5.5	0	0	0	0
	22-37	30-45	---	4.5-5.5	0	0	0	0
	37-50	30-45	---	4.5-5.5	0	0	0	0
	50-67	30-40	---	4.5-5.5	0	0	0	0
Peavine, basalt bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	25-40	---	4.5-5.5	0	0	0	0
	6-13	20-45	---	4.5-5.5	0	0	0	0
	13-32	30-50	---	4.5-5.5	0	0	0	0
	32-37	30-45	---	4.5-5.5	0	0	0	0
	37-47	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
90:								
Honeygrove, basalt bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	25-40	---	4.5-5.5	0	0	0	0
	9-15	30-45	---	4.5-5.5	0	0	0	0
	15-22	30-50	---	4.5-5.5	0	0	0	0
	22-37	30-45	---	4.5-5.5	0	0	0	0
	37-50	30-45	---	4.5-5.5	0	0	0	0
	50-67	30-40	---	4.5-5.5	0	0	0	0
Shivigny-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	25-40	---	5.1-6.0	0	0	0	0
	7-13	25-45	---	4.5-5.5	0	0	0	0
	13-23	30-45	---	4.5-5.5	0	0	0	0
	23-34	30-40	---	4.5-5.5	0	0	0	0
	34-43	30-40	---	4.5-5.5	0	0	0	0
	43-68	30-40	---	4.5-5.5	0	0	0	0
	68-78	---	---	---	---	---	---	---
91:								
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
92:								
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
93:								
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
94:								
Jory, sedimentary bedrock-------------	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
95:								
Jory, sedimentary bedrock-------------	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
96:								
Jory, sedimentary bedrock	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
97:								
Jory, sedimentary bedrock	0-7	15-30	---	5.1-6.0	0	0	0	0
	7-15	15-25	---	5.1-6.0	0	0	0	0
	15-23	15-25	---	4.5-6.0	0	0	0	0
	23-35	14-25	---	4.5-6.0	0	0	0	0
	35-51	12-25	---	4.5-6.0	0	0	0	0
	51-60	12-25	---	4.5-6.0	0	0	0	0
Dupee	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0
98:								
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
Gelderman	0-5	15-30	---	5.1-6.0	0	0	0	0
	5-10	15-25	---	5.1-6.0	0	0	0	0
	10-24	12-25	---	4.5-6.0	0	0	0	0
	24-30	12-25	---	4.5-6.0	0	0	0	0
	30-40	---	---	---	---	---	---	---
99:								
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
Nekia	0-9	15-30	---	5.1-6.0	0	0	0	0
	9-18	15-25	---	5.1-6.0	0	0	0	0
	18-24	12-25	---	4.5-6.0	0	0	0	0
	24-36	12-25	---	4.5-6.0	0	0	0	0
	36-40	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
100:								
Jory, basalt bedrock	0-6	15-30	---	5.1-6.0	0	0	0	0
	6-16	15-25	---	5.1-6.0	0	0	0	0
	16-19	15-25	---	4.5-6.0	0	0	0	0
	19-29	14-25	---	4.5-6.0	0	0	0	0
	29-48	12-25	---	4.5-6.0	0	0	0	0
	48-100	12-25	---	4.5-6.0	0	0	0	0
Nekia----------------	0-9	15-30	---	5.1-6.0	0	0	0	0
	9-18	15-25	---	5.1-6.0	0	0	0	0
	18-24	12-25	---	4.5-6.0	0	0	0	0
	24-36	12-25	---	4.5-6.0	0	0	0	0
	36-40	---	---	---	---	---	---	---
101:								
Kirkendall-----------	0-8	20-40	---	4.5-6.5	0	0	0	0
	8-17	15-30	---	4.5-6.5	0	0	0	0
	17-36	20-35	---	4.5-6.5	0	0	0	0
	36-47	20-35	---	4.5-6.5	0	0	0	0
	47-68	15-30	---	4.5-6.5	0	0	0	0
Nekoma---------------	0-5	10-30	---	5.1-6.0	0	0	0	0
	5-14	10-30	---	5.1-6.0	0	0	0	0
	14-26	5.0-15	---	4.5-6.0	0	0	0	0
	26-48	5.0-15	---	4.5-6.0	0	0	0	0
	48-60	5.0-15	---	4.5-6.0	0	0	0	0
Quosatana------------	0-14	25-35	---	5.1-6.0	0	0	0	0
	14-39	20-35	---	5.1-6.5	0	0	0	0
	39-48	20-35	---	5.1-6.5	0	0	0	0
	48-65	20-40	---	4.5-6.5	0	0	0	0
102:								
Klistan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-17	40-60	---	4.5-5.5	0	0	0	0
	17-25	30-50	---	4.5-5.5	0	0	0	0
	25-43	30-50	---	4.5-5.5	0	0	0	0
	43-56	20-40	---	4.5-5.5	0	0	0	0
	56-60	---	---	---	---	---	---	---
Harslow--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	40-60	---	4.5-6.0	0	0	0	0
	6-11	40-60	---	4.5-6.0	0	0	0	0
	11-17	30-50	---	4.5-6.0	0	0	0	0
	17-26	30-50	---	4.5-6.0	0	0	0	0
	26-34	20-40	---	4.5-6.0	0	0	0	0
	34-38	---	---	---	---	---	---	---
103:								
Klistan--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-17	40-60	---	4.5-5.5	0	0	0	0
	17-25	30-50	---	4.5-5.5	0	0	0	0
	25-43	30-50	---	4.5-5.5	0	0	0	0
	43-56	20-40	---	4.5-5.5	0	0	0	0
	56-60	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
103:								
Harslow--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	40-60	---	4.5-6.0	0	0	0	0
	6-11	40-60	---	4.5-6.0	0	0	0	0
	11-17	30-50	---	4.5-6.0	0	0	0	0
	17-26	30-50	---	4.5-6.0	0	0	0	0
	26-34	20-40	---	4.5-6.0	0	0	0	0
	34-38	---	---	---	---	---	---	---
Hemcross-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	30-50	---	4.5-5.5	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-38	30-50	---	4.5-5.5	0	0	0	0
	38-48	20-40	---	4.5-5.5	0	0	0	0
	48-68	20-40	---	4.5-5.5	0	0	0	0
104:								
Laderly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-29	30-50	---	4.5-5.5	0	0	0	0
	29-37	30-50	---	4.5-5.5	0	0	0	0
	37-41	---	---	---	---	---	---	---
Murtip---------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-19	40-60	---	4.5-5.5	0	0	0	0
	19-31	30-50	---	4.5-5.5	0	0	0	0
	31-45	30-50	---	4.5-5.5	0	0	0	0
	45-56	20-40	---	4.5-5.5	0	0	0	0
	56-66	---	---	---	---	---	---	---
Giveout--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-16	40-60	---	4.5-5.5	0	0	0	0
	16-28	30-50	---	4.5-5.5	0	0	0	0
	28-36	30-50	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
105:								
Linslaw--------------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-16	10-20	---	5.1-6.0	0	0	0	0
	16-28	20-25	---	4.5-5.5	0	0	0	0
	28-42	20-25	---	4.5-5.5	0	0	0	0
	42-56	20-30	---	4.5-6.0	0	0	0	0
	56-60	5.0-20	---	4.5-6.0	0	0	0	0
106:								
Linslaw--------------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-16	10-20	---	5.1-6.0	0	0	0	0
	16-28	20-25	---	4.5-5.5	0	0	0	0
	28-42	20-25	---	4.5-5.5	0	0	0	0
	42-56	20-30	---	4.5-6.0	0	0	0	0
	56-60	5.0-20	---	4.5-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
107:								
Lurnick--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-8	40-60	---	4.5-5.5	0	0	0	0
	8-22	20-35	---	4.5-5.5	0	0	0	0
	22-29	15-30	---	4.5-5.5	0	0	0	0
	29-36	15-25	---	4.5-5.5	0	0	0	0
	36-40	---	---	---	---	---	---	---
	40-44	---	---	---	---	---	---	---
Luckiamute-----------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-6	40-60	---	4.5-5.5	0	0	0	0
	6-17	20-35	---	4.5-5.5	0	0	0	0
	17-21	---	---	---	---	---	---	---
108:								
Lurnick--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-8	40-60	---	4.5-5.5	0	0	0	0
	8-22	20-35	---	4.5-5.5	0	0	0	0
	22-29	15-30	---	4.5-5.5	0	0	0	0
	29-36	15-25	---	4.5-5.5	0	0	0	0
	36-40	---	---	---	---	---	---	---
	40-44	---	---	---	---	---	---	---
Luckiamute-----------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-6	40-60	---	4.5-5.5	0	0	0	0
	6-17	20-35	---	4.5-5.5	0	0	0	0
	17-21	---	---	---	---	---	---	---
Maryspeak------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-13	5.0-15	---	4.5-5.5	0	0	0	0
	13-34	5.0-15	---	4.5-5.5	0	0	0	0
	34-59	5.0-10	---	4.5-5.5	0	0	0	0
	59-73	5.0-15	---	4.5-5.5	0	0	0	0
109:								
MacDunn--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	35-55	---	5.1-6.0	0	0	0	0
	7-15	30-55	---	5.1-6.0	0	0	0	0
	15-24	30-55	---	5.1-6.0	0	0	0	0
	24-38	30-55	---	5.1-6.0	0	0	0	0
	38-51	30-55	---	5.1-6.0	0	0	0	0
	51-61	---	---	---	---	---	---	---
Price----------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-8	35-55	---	5.1-6.0	0	0	0	0
	8-17	30-55	---	5.1-6.0	0	0	0	0
	17-31	30-55	---	5.1-6.0	0	0	0	0
	31-54	30-55	---	5.1-6.0	0	0	0	0
	54-86	30-55	---	5.1-6.0	0	0	0	0
	86-90	---	---	---	---	---	---	---
Ritner---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	35-55	---	5.6-6.0	0	0	0	0
	6-16	30-55	---	5.6-6.0	0	0	0	0
	16-25	30-55	---	5.1-6.0	0	0	0	0
	25-39	30-55	---	5.1-6.0	0	0	0	0
	39-43	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
110:								
Malabon--------------	0-7	25-35	---	5.6-6.5	0	0	0	0
	7-12	25-40	---	5.6-6.5	0	0	0	0
	12-19	25-40	---	5.6-7.3	0	0	0	0
	19-29	25-40	---	5.6-7.3	0	0	0	0
	29-42	25-40	---	5.6-7.3	0	0	0	0
	42-60	10-30	---	6.1-7.3	0	0	0	0
111:								
Malabon, rarely flooded-------------	0-6	25-35	---	5.6-6.5	0	0	0	0
	6-12	25-40	---	5.6-6.5	0	0	0	0
	12-18	25-40	---	5.6-7.3	0	0	0	0
	18-34	25-40	---	5.6-7.3	0	0	0	0
	34-47	25-40	---	5.6-7.3	0	0	0	0
	47-58	25-40	---	5.6-7.3	0	0	0	0
	58-63	10-30	---	6.1-7.3	0	0	0	0
112:								
Maryspeak------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-2	---	30-40	3.5-5.5	0	0	0	0
	2-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	40-60	---	4.5-5.5	0	0	0	0
	9-13	5.0-15	---	4.5-5.5	0	0	0	0
	13-34	5.0-15	---	4.5-5.5	0	0	0	0
	34-59	5.0-10	---	4.5-5.5	0	0	0	0
	59-73	5.0-15	---	4.5-5.5	0	0	0	0
113:								
McAlpin--------------	0-5	20-30	---	5.1-6.0	0	0	0	0
	5-8	20-30	---	5.1-6.0	0	0	0	0
	8-14	20-30	---	5.1-6.0	0	0	0	0
	14-23	20-30	---	5.1-6.5	0	0	0	0
	23-37	25-35	---	5.1-6.5	0	0	0	0
	37-51	25-35	---	5.1-6.5	0	0	0	0
	51-65	25-35	---	5.1-6.5	0	0	0	0
114:								
McAlpin--------------	0-5	20-30	---	5.1-6.0	0	0	0	0
	5-8	20-30	---	5.1-6.0	0	0	0	0
	8-14	20-30	---	5.1-6.0	0	0	0	0
	14-23	20-30	---	5.1-6.5	0	0	0	0
	23-37	25-35	---	5.1-6.5	0	0	0	0
	37-51	25-35	---	5.1-6.5	0	0	0	0
	51-65	25-35	---	5.1-6.5	0	0	0	0
115:								
McAlpin, high precipitation-------	0-5	20-30	---	5.1-6.0	0	0	0	0
	5-8	20-30	---	5.1-6.0	0	0	0	0
	8-14	20-30	---	5.1-6.0	0	0	0	0
	14-23	20-30	---	5.1-6.5	0	0	0	0
	23-37	25-35	---	5.1-6.5	0	0	0	0
	37-51	25-35	---	5.1-6.5	0	0	0	0
	51-65	25-35	---	5.1-6.5	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
116:								
McAlpin, high precipitation-------	0-5	20-30	---	5.1-6.0	0	0	0	0
	5-8	20-30	---	5.1-6.0	0	0	0	0
	8-14	20-30	---	5.1-6.0	0	0	0	0
	14-23	20-30	---	5.1-6.5	0	0	0	0
	23-37	25-35	---	5.1-6.5	0	0	0	0
	37-51	25-35	---	5.1-6.5	0	0	0	0
	51-65	25-35	---	5.1-6.5	0	0	0	0
117:								
McAlpin, rarely flooded-------------	0-5	25-40	---	5.1-6.0	0	0	0	0
	5-14	25-40	---	5.1-6.0	0	0	0	0
	14-22	25-45	---	5.1-6.5	0	0	0	0
	22-31	30-45	---	5.1-6.5	0	0	0	0
	31-54	30-45	---	5.1-6.5	0	0	0	0
	54-60	30-45	---	5.1-6.5	0	0	0	0
118:								
McBee----------------	0-7	25-35	---	5.6-6.5	0	0	0	0
	7-10	25-35	---	5.6-6.5	0	0	0	0
	10-22	25-35	---	5.6-6.5	0	0	0	0
	22-35	25-35	---	5.6-7.3	0	0	0	0
	35-42	25-35	---	6.1-7.3	0	0	0	0
	42-65	20-40	---	6.1-7.3	0	0	0	0
119:								
McBee, nonflooded----	0-6	25-35	---	5.6-6.5	0	0	0	0
	6-12	25-35	---	5.6-6.5	0	0	0	0
	12-25	25-35	---	5.6-7.3	0	0	0	0
	25-40	25-35	---	5.6-7.3	0	0	0	0
	40-60	20-40	---	6.1-7.3	0	0	0	0
120:								
Meda-----------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-13	10-20	---	5.1-6.0	0	0	0	0
	13-18	10-20	---	5.1-6.0	0	0	0	0
	18-30	10-20	---	5.1-6.0	0	0	0	0
	30-34	10-20	---	5.1-6.0	0	0	0	0
	34-66	0.0-5.0	---	5.1-6.0	0	0	0	0
Treharne-------------	0-6	10-20	---	4.5-6.5	0	0	0	0
	6-14	10-20	---	4.5-6.5	0	0	0	0
	14-21	15-25	---	4.5-5.5	0	0	0	0
	21-32	15-25	---	4.5-5.5	0	0	0	0
	32-68	15-30	---	3.5-5.5	0	0	0	0
Wasson---------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-11	10-20	---	5.6-6.0	0	0	0	0
	11-15	5.0-15	---	4.5-6.0	0	0	0	0
	15-33	5.0-10	---	4.5-6.0	0	0	0	0
	33-66	5.0-10	---	4.5-6.0	0	0	0	0
121:								
Mulkey---------------	0-10	40-60	---	3.5-5.0	0	0	0	0
	10-19	40-60	---	3.5-5.0	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-30	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
122:								
Mulkey---------------	0-10	40-60	---	3.5-5.0	0	0	0	0
	10-19	40-60	---	3.5-5.0	0	0	0	0
	19-26	30-50	---	4.5-5.5	0	0	0	0
	26-30	---	---	---	---	---	---	---
123:								
Murtip---------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-19	40-60	---	4.5-5.5	0	0	0	0
	19-31	30-50	---	4.5-5.5	0	0	0	0
	31-45	30-50	---	4.5-5.5	0	0	0	0
	45-56	20-40	---	4.5-5.5	0	0	0	0
	56-66	---	---	---	---	---	---	---
Giveout--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-16	40-60	---	4.5-5.5	0	0	0	0
	16-28	30-50	---	4.5-5.5	0	0	0	0
	28-36	30-50	---	4.5-5.5	0	0	0	0
	36-46	---	---	---	---	---	---	---
Laderly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-15	40-60	---	4.5-5.5	0	0	0	0
	15-29	30-50	---	4.5-5.5	0	0	0	0
	29-37	30-50	---	4.5-5.5	0	0	0	0
	37-41	---	---	---	---	---	---	---
124:								
Nekoma---------------	0-5	10-30	---	5.1-6.0	0	0	0	0
	5-14	10-30	---	5.1-6.0	0	0	0	0
	14-26	5.0-15	---	4.5-6.0	0	0	0	0
	26-48	5.0-15	---	4.5-6.0	0	0	0	0
	48-60	5.0-15	---	4.5-6.0	0	0	0	0
Fluvaquents----------	0-7	15-35	---	5.1-6.5	0	0	0	0
	7-28	15-25	---	5.1-7.3	0	0	0	0
	28-44	15-25	---	5.1-7.3	0	0	0	0
	44-66	15-25	---	5.1-7.3	0	0	0	0
125:								
Newberg--------------	0-7	15-25	---	5.6-6.5	0	0	0	0
	7-19	15-25	---	5.6-6.5	0	0	0	0
	19-28	15-25	---	5.6-6.5	0	0	0	0
	28-48	10-25	---	5.6-6.5	0	0	0	0
	48-64	10-25	---	5.6-7.3	0	0	0	0
126:								
Newberg, high precipitation-------	0-7	15-25	---	5.6-6.5	0	0	0	0
	7-19	15-25	---	5.6-6.5	0	0	0	0
	19-28	15-25	---	5.6-6.5	0	0	0	0
	28-48	10-25	---	5.6-6.5	0	0	0	0
	48-64	10-25	---	5.6-7.3	0	0	0	0
127:								
Newberg--------------	0-8	15-25	---	5.6-6.5	0	0	0	0
	8-18	15-25	---	5.6-6.5	0	0	0	0
	18-30	15-25	---	5.6-6.5	0	0	0	0
	30-46	10-25	---	5.6-6.5	0	0	0	0
	46-60	10-25	---	5.6-7.3	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
128:								
Oldblue--------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-6	40-60	---	4.5-5.5	0	0	0	0
	6-12	40-60	---	4.5-5.5	0	0	0	0
	12-21	30-50	---	4.5-5.5	0	0	0	0
	21-38	20-35	---	4.5-5.5	0	0	0	0
	38-75	20-30	---	4.5-5.5	0	0	0	0
	75-85	---	---	---	---	---	---	---
Burntwoods-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-3	---	30-40	3.5-5.5	0	0	0	0
	3-12	40-60	---	4.5-5.5	0	0	0	0
	12-19	40-60	---	4.5-5.5	0	0	0	0
	19-27	25-35	---	4.5-5.5	0	0	0	0
	27-41	20-35	---	4.5-5.5	0	0	0	0
	41-53	20-30	---	4.5-5.5	0	0	0	0
	53-67	20-25	---	4.5-5.5	0	0	0	0
129:								
Panther--------------	0-8	20-35	---	5.6-6.5	0	0	0	0
	8-14	20-35	---	5.6-6.5	0	0	0	0
	14-24	40-55	---	4.5-6.5	0	0	0	0
	24-36	40-55	---	4.5-6.5	0	0	0	0
	36-44	40-55	---	3.5-6.5	0	0	0	0
	44-54	---	---	---	---	---	---	---
130:								
Pengra---------------	0-6	20-30	---	5.6-6.5	0	0	0	0
	6-13	20-30	---	5.1-6.5	0	0	0	0
	13-21	20-30	---	5.1-6.5	0	0	0	0
	21-36	35-50	---	5.1-7.3	0	0	0	0
	36-60	35-50	---	5.1-7.3	0	0	0	0
131:								
Philomath------------	0-4	35-60	---	5.6-6.5	0	0	0	0
	4-8	40-65	---	5.6-7.3	0	0	0	0
	8-15	40-65	---	5.6-7.3	0	0	0	0
	15-25	---	---	---	---	---	---	---
132:								
Pilchuck-------------	0-7	15-25	---	5.6-7.3	0	0	0	0
	7-45	5.0-20	---	6.1-7.3	0	0	0	0
	45-62	5.0-20	---	6.1-7.3	0	0	0	0
133:								
Pits-----------------	---	---	---	---	---	---	---	---
134:								
Preacher-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-12	40-60	---	4.5-5.5	0	0	0	0
	12-18	20-40	---	4.5-5.5	0	0	0	0
	18-29	20-40	---	4.5-5.5	0	0	0	0
	29-44	20-35	---	4.5-5.5	0	0	0	0
	44-53	10-30	---	4.5-5.5	0	0	0	0
	53-63	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
134:								
Blachly--------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	20-40	---	4.5-5.5	0	0	0	0
	7-16	20-40	---	4.5-5.5	0	0	0	0
	16-27	25-45	---	4.5-5.5	0	0	0	0
	27-54	25-40	---	4.5-5.5	0	0	0	0
	54-65	25-35	---	4.5-5.5	0	0	0	0
	65-96	25-30	---	4.5-5.5	0	0	0	0
Bohannon-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	20-40	---	4.5-5.5	0	0	0	0
	19-27	20-35	---	4.5-5.5	0	0	0	0
	27-34	15-30	---	4.5-5.5	0	0	0	0
	34-44	---	---	---	---	---	---	---
135:								
Preacher-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-12	40-60	---	4.5-5.5	0	0	0	0
	12-18	20-40	---	4.5-5.5	0	0	0	0
	18-29	20-40	---	4.5-5.5	0	0	0	0
	29-44	20-35	---	4.5-5.5	0	0	0	0
	44-53	10-30	---	4.5-5.5	0	0	0	0
	53-63	---	---	---	---	---	---	---
Bohannon-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	20-40	---	4.5-5.5	0	0	0	0
	19-27	20-35	---	4.5-5.5	0	0	0	0
	27-34	15-30	---	4.5-5.5	0	0	0	0
	34-44	---	---	---	---	---	---	---
136:								
Preacher-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-12	40-60	---	4.5-5.5	0	0	0	0
	12-18	20-40	---	4.5-5.5	0	0	0	0
	18-29	20-40	---	4.5-5.5	0	0	0	0
	29-44	20-35	---	4.5-5.5	0	0	0	0
	44-53	10-30	---	4.5-5.5	0	0	0	0
	53-63	---	---	---	---	---	---	---
Bohannon-------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-10	40-60	---	4.5-5.5	0	0	0	0
	10-19	20-40	---	4.5-5.5	0	0	0	0
	19-27	20-35	---	4.5-5.5	0	0	0	0
	27-34	15-30	---	4.5-5.5	0	0	0	0
	34-44	---	---	---	---	---	---	---
Slickrock------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-11	40-60	---	4.5-5.5	0	0	0	0
	11-23	40-60	---	4.5-5.5	0	0	0	0
	23-36	30-45	---	4.5-5.0	0	0	0	0
	36-48	30-35	---	4.5-5.0	0	0	0	0
	48-60	20-35	---	4.5-5.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
137:								
Price	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-8	35-55	---	5.1-6.0	0	0	0	0
	8-17	30-55	---	5.1-6.0	0	0	0	0
	17-31	30-55	---	5.1-6.0	0	0	0	0
	31-54	30-55	---	5.1-6.0	0	0	0	0
	54-86	30-55	---	5.1-6.0	0	0	0	0
	86-90	---	---	---	---	---	---	---
MacDunn	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	35-55	---	5.1-6.0	0	0	0	0
	7-15	30-55	---	5.1-6.0	0	0	0	0
	15-24	30-55	---	5.1-6.0	0	0	0	0
	24-38	30-55	---	5.1-6.0	0	0	0	0
	38-51	30-55	---	5.1-6.0	0	0	0	0
	51-61	---	---	---	---	---	---	---
Ritner	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	35-55	---	5.6-6.0	0	0	0	0
	6-16	30-55	---	5.6-6.0	0	0	0	0
	16-25	30-55	---	5.1-6.0	0	0	0	0
	25-39	30-55	---	5.1-6.0	0	0	0	0
	39-43	---	---	---	---	---	---	---
138:								
Riverwash	0-60	---	---	---	---	---	---	---
139:								
Salem	0-9	10-20	---	5.6-6.5	0	0	0	0
	9-18	20-30	---	6.1-7.3	0	0	0	0
	18-30	20-30	---	6.1-7.3	0	0	0	0
	30-60	0.0-15	---	6.1-7.3	0	0	0	0
140:								
Santiam	0-6	10-20	---	5.1-6.0	0	0	0	0
	6-13	10-20	---	5.1-6.0	0	0	0	0
	13-22	20-25	---	5.1-6.0	0	0	0	0
	22-30	20-25	---	5.1-6.0	0	0	0	0
	30-60	20-25	---	5.1-6.0	0	0	0	0
141:								
Santiam	0-6	10-20	---	5.1-6.0	0	0	0	0
	6-13	10-20	---	5.1-6.0	0	0	0	0
	13-22	20-25	---	5.1-6.0	0	0	0	0
	22-30	20-25	---	5.1-6.0	0	0	0	0
	30-60	20-25	---	5.1-6.0	0	0	0	0
142:								
Sevencedars	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-8	40-60	---	4.5-5.5	0	0	0	0
	8-17	40-60	---	4.5-5.5	0	0	0	0
	17-30	30-50	---	4.5-5.5	0	0	0	0
	30-48	30-50	---	4.5-5.5	0	0	0	0
	48-65	20-40	---	4.5-5.5	0	0	0	0
Newanna	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-13	40-60	---	4.5-5.5	0	0	0	0
	13-22	30-50	---	4.5-5.5	0	0	0	0
	22-33	30-50	---	4.5-5.5	0	0	0	0
	33-37	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
143:								
Sevencedars----------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-8	40-60	---	4.5-5.5	0	0	0	0
	8-17	40-60	---	4.5-5.5	0	0	0	0
	17-30	30-50	---	4.5-5.5	0	0	0	0
	30-48	30-50	---	4.5-5.5	0	0	0	0
	48-65	20-40	---	4.5-5.5	0	0	0	0
Newanna--------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-13	40-60	---	4.5-5.5	0	0	0	0
	13-22	30-50	---	4.5-5.5	0	0	0	0
	22-33	30-50	---	4.5-5.5	0	0	0	0
	33-37	---	---	---	---	---	---	---
Woodspoint-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-5	40-60	---	4.5-5.5	0	0	0	0
	5-16	40-60	---	4.5-5.5	0	0	0	0
	16-27	30-50	---	4.5-5.5	0	0	0	0
	27-46	30-50	---	4.5-5.5	0	0	0	0
	46-50	---	---	---	---	---	---	---
144:								
Sevencedars----------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-8	40-60	---	4.5-5.5	0	0	0	0
	8-17	40-60	---	4.5-5.5	0	0	0	0
	17-30	30-50	---	4.5-5.5	0	0	0	0
	30-48	30-50	---	4.5-5.5	0	0	0	0
	48-65	20-40	---	4.5-5.5	0	0	0	0
Newanna--------------	0-2	---	30-40	3.5-5.5	0	0	0	0
	2-13	40-60	---	4.5-5.5	0	0	0	0
	13-22	30-50	---	4.5-5.5	0	0	0	0
	22-33	30-50	---	4.5-5.5	0	0	0	0
	33-37	---	---	---	---	---	---	---
Woodspoint-----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-5	40-60	---	4.5-5.5	0	0	0	0
	5-16	40-60	---	4.5-5.5	0	0	0	0
	16-27	30-50	---	4.5-5.5	0	0	0	0
	27-46	30-50	---	4.5-5.5	0	0	0	0
	46-50	---	---	---	---	---	---	---
145:								
Shivigny-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-7	25-40	---	5.1-6.0	0	0	0	0
	7-13	25-45	---	4.5-5.5	0	0	0	0
	13-23	30-45	---	4.5-5.5	0	0	0	0
	23-34	30-40	---	4.5-5.5	0	0	0	0
	34-43	30-40	---	4.5-5.5	0	0	0	0
	43-68	30-40	---	4.5-5.5	0	0	0	0
	68-78	---	---	---	---	---	---	---
Honeygrove, basalt bedrock-------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	25-40	---	4.5-5.5	0	0	0	0
	9-15	30-45	---	4.5-5.5	0	0	0	0
	15-22	30-50	---	4.5-5.5	0	0	0	0
	22-37	30-45	---	4.5-5.5	0	0	0	0
	37-50	30-45	---	4.5-5.5	0	0	0	0
	50-67	30-40	---	4.5-5.5	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
146:								
Slickrock------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-11	40-60	---	4.5-5.5	0	0	0	0
	11-23	40-60	---	4.5-5.5	0	0	0	0
	23-36	30-45	---	4.5-5.0	0	0	0	0
	36-48	30-35	---	4.5-5.0	0	0	0	0
	48-60	20-35	---	4.5-5.0	0	0	0	0
147:								
Steiwer--------------	0-7	20-25	---	5.1-6.5	0	0	0	0
	7-15	20-25	---	5.1-6.0	0	0	0	0
	15-19	15-25	---	5.1-6.0	0	0	0	0
	19-26	15-25	---	5.1-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---
Chehulpum------------	0-4	15-20	---	5.6-6.5	0	0	0	0
	4-12	10-20	---	5.6-6.5	0	0	0	0
	12-22	---	---	---	---	---	---	---
148:								
Steiwer--------------	0-7	20-25	---	5.1-6.5	0	0	0	0
	7-15	20-25	---	5.1-6.0	0	0	0	0
	15-19	15-25	---	5.1-6.0	0	0	0	0
	19-26	15-25	---	5.1-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---
Chehulpum------------	0-4	15-20	---	5.6-6.5	0	0	0	0
	4-12	10-20	---	5.6-6.5	0	0	0	0
	12-22	---	---	---	---	---	---	---
149:								
Steiwer--------------	0-7	20-25	---	5.1-6.5	0	0	0	0
	7-15	20-25	---	5.1-6.0	0	0	0	0
	15-19	15-25	---	5.1-6.0	0	0	0	0
	19-26	15-25	---	5.1-6.0	0	0	0	0
	26-36	---	---	---	---	---	---	---
Chehulpum------------	0-4	15-20	---	5.6-6.5	0	0	0	0
	4-12	10-20	---	5.6-6.5	0	0	0	0
	12-22	---	---	---	---	---	---	---
150:								
Treharne-------------	0-6	10-20	---	4.5-6.5	0	0	0	0
	6-14	10-20	---	4.5-6.5	0	0	0	0
	14-21	15-25	---	4.5-5.5	0	0	0	0
	21-32	15-25	---	4.5-5.5	0	0	0	0
	32-68	15-30	---	3.5-5.5	0	0	0	0
Eilertsen------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-9	10-25	---	4.5-6.5	0	0	0	0
	9-18	10-25	---	4.5-6.5	0	0	0	0
	18-29	15-30	---	4.5-5.5	0	0	0	0
	29-45	15-30	---	4.5-5.5	0	0	0	0
	45-54	5.0-15	---	3.5-5.5	0	0	0	0
	54-72	5.0-15	---	3.5-5.5	0	0	0	0
Zyzzug---------------	0-12	20-30	---	5.1-6.0	0	0	0	0
	12-36	10-25	---	5.1-6.0	0	0	0	0
	36-42	10-20	---	5.1-6.0	0	0	0	0
	42-63	10-20	---	5.1-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
151:								
Valsetz--------------	0-3	---	30-40	3.5-5.5	0	0	0	0
	3-11	40-60	---	4.5-5.5	0	0	0	0
	11-21	30-50	---	4.5-5.5	0	0	0	0
	21-30	30-50	---	4.5-5.5	0	0	0	0
	30-35	30-50	---	4.5-5.5	0	0	0	0
	35-39	---	---	---	---	---	---	---
Yellowstone----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	30-50	---	4.5-5.5	0	0	0	0
	9-18	30-50	---	4.5-5.5	0	0	0	0
	18-22	---	---	---	---	---	---	---
152:								
Valsetz--------------	0-3	---	30-40	3.5-5.5	0	0	0	0
	3-11	40-60	---	4.5-5.5	0	0	0	0
	11-21	30-50	---	4.5-5.5	0	0	0	0
	21-30	30-50	---	4.5-5.5	0	0	0	0
	30-35	30-50	---	4.5-5.5	0	0	0	0
	35-39	---	---	---	---	---	---	---
Yellowstone----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	30-50	---	4.5-5.5	0	0	0	0
	9-18	30-50	---	4.5-5.5	0	0	0	0
	18-22	---	---	---	---	---	---	---
153:								
Valsetz--------------	0-3	---	30-40	3.5-5.5	0	0	0	0
	3-11	40-60	---	4.5-5.5	0	0	0	0
	11-21	30-50	---	4.5-5.5	0	0	0	0
	21-30	30-50	---	4.5-5.5	0	0	0	0
	30-35	30-50	---	4.5-5.5	0	0	0	0
	35-39	---	---	---	---	---	---	---
Yellowstone----------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-4	40-60	---	4.5-5.5	0	0	0	0
	4-9	30-50	---	4.5-5.5	0	0	0	0
	9-18	30-50	---	4.5-5.5	0	0	0	0
	18-22	---	---	---	---	---	---	---
154:								
Verboort-------------	0-8	20-30	---	5.1-6.0	0	0	0	0
	8-12	20-30	---	5.1-6.0	0	0	0	0
	12-19	15-30	---	5.1-6.0	0	0	0	0
	19-28	30-45	---	5.6-7.3	0	0	0	0
	28-33	30-45	---	5.6-7.3	0	0	0	0
	33-60	15-30	---	6.1-7.3	0	0	0	0
155:								
Waldo----------------	0-2	25-40	---	5.1-6.5	0	0	0	0
	2-7	25-40	---	5.1-6.5	0	0	0	0
	7-10	25-40	---	5.1-6.5	0	0	0	0
	10-15	35-50	---	5.1-6.5	0	0	0	0
	15-23	40-50	---	5.1-6.0	0	0	0	0
	23-37	40-50	---	5.1-6.0	0	0	0	0
	37-46	40-50	---	5.1-6.0	0	0	0	0
	46-60	40-50	---	5.1-6.0	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
156:								
Waldo, high precipitation-------	0-2	25-40	---	5.1-6.5	0	0	0	0
	2-7	25-40	---	5.1-6.5	0	0	0	0
	7-10	25-40	---	5.1-6.5	0	0	0	0
	10-15	35-50	---	5.1-6.5	0	0	0	0
	15-23	40-50	---	5.1-6.0	0	0	0	0
	23-37	40-50	---	5.1-6.0	0	0	0	0
	37-46	40-50	---	5.1-6.0	0	0	0	0
	46-60	40-50	---	5.1-6.0	0	0	0	0
157:								
Wapato---------------	0-9	25-35	---	5.1-7.3	0	0	0	0
	9-16	25-35	---	5.1-7.3	0	0	0	0
	16-22	25-35	---	5.1-6.5	0	0	0	0
	22-32	25-35	---	5.1-6.5	0	0	0	0
	32-60	25-45	---	5.6-6.5	0	0	0	0
158:								
Wapato, high precipitation-------	0-9	25-35	---	5.1-7.3	0	0	0	0
	9-16	25-35	---	5.1-7.3	0	0	0	0
	16-22	25-35	---	5.1-6.5	0	0	0	0
	22-32	25-35	---	5.1-6.5	0	0	0	0
	32-60	25-45	---	5.6-6.5	0	0	0	0
159:								
Water----------------	---	---	---	---	---	---	---	---
160:								
Wellsdale------------	0-2	10-15	---	5.1-6.0	0	0	0	0
	2-8	8.0-15	---	5.1-6.0	0	0	0	0
	8-24	8.0-15	---	5.1-6.0	0	0	0	0
	24-34	9.0-15	---	5.1-6.0	0	0	0	0
	34-57	10-25	---	4.5-5.5	0	0	0	0
	57-65	10-25	---	4.5-5.5	0	0	0	0
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
161:								
Wellsdale------------	0-2	10-15	---	5.1-6.0	0	0	0	0
	2-8	8.0-15	---	5.1-6.0	0	0	0	0
	8-24	8.0-15	---	5.1-6.0	0	0	0	0
	24-34	9.0-15	---	5.1-6.0	0	0	0	0
	34-57	10-25	---	4.5-5.5	0	0	0	0
	57-65	10-25	---	4.5-5.5	0	0	0	0
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
161:								
Dupee----------------	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0
162:								
Wellsdale, north slopes--------------	0-2	10-15	---	5.1-6.0	0	0	0	0
	2-8	8.0-15	---	5.1-6.0	0	0	0	0
	8-24	8.0-15	---	5.1-6.0	0	0	0	0
	24-34	9.0-15	---	5.1-6.0	0	0	0	0
	34-57	10-25	---	4.5-5.5	0	0	0	0
	57-65	10-25	---	4.5-5.5	0	0	0	0
Willakenzie, north slopes--------------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
Dupee, north slopes--	0-4	15-25	---	5.1-6.0	0	0	0	0
	4-9	15-25	---	5.1-6.0	0	0	0	0
	9-17	15-25	---	4.5-5.5	0	0	0	0
	17-24	15-23	---	4.5-5.5	0	0	0	0
	24-34	15-23	---	4.5-5.5	0	0	0	0
	34-42	15-23	---	4.5-5.5	0	0	0	0
	42-51	15-23	---	4.5-5.5	0	0	0	0
	51-62	15-23	---	4.5-5.5	0	0	0	0
163:								
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
164:								
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
165:								
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
166:								
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
167:								
Willakenzie, south slopes--------------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
Wellsdale, south slopes--------------	0-2	10-15	---	5.1-6.0	0	0	0	0
	2-8	8.0-15	---	5.1-6.0	0	0	0	0
	8-24	8.0-15	---	5.1-6.0	0	0	0	0
	24-34	9.0-15	---	5.1-6.0	0	0	0	0
	34-57	10-25	---	4.5-5.5	0	0	0	0
	57-65	10-25	---	4.5-5.5	0	0	0	0
168:								
Willakenzie----------	0-5	10-20	---	5.1-6.0	0	0	0	0
	5-11	8.0-15	---	5.1-6.0	0	0	0	0
	11-19	9.0-15	---	5.1-6.0	0	0	0	0
	19-32	9.0-15	---	5.1-5.5	0	0	0	0
	32-42	---	---	---	---	---	---	---
Wellsdale-----------	0-2	10-15	---	5.1-6.0	0	0	0	0
	2-8	8.0-15	---	5.1-6.0	0	0	0	0
	8-24	8.0-15	---	5.1-6.0	0	0	0	0
	24-34	9.0-15	---	5.1-6.0	0	0	0	0
	34-57	10-25	---	4.5-5.5	0	0	0	0
	57-65	10-25	---	4.5-5.5	0	0	0	0
169:								
Willamette-----------	0-6	15-25	---	4.5-6.5	0	0	0	0
	6-13	15-25	---	4.5-6.5	0	0	0	0
	13-24	12-23	---	5.1-6.5	0	0	0	0
	24-33	15-35	---	5.1-6.5	0	0	0	0
	33-45	15-35	---	5.6-6.5	0	0	0	0
	45-53	15-35	---	5.6-7.3	0	0	0	0
	53-60	20-30	---	5.6-7.3	0	0	0	0
170:								
Willamette-----------	0-6	15-25	---	4.5-6.5	0	0	0	0
	6-13	15-25	---	4.5-6.5	0	0	0	0
	13-24	12-23	---	5.1-6.5	0	0	0	0
	24-33	15-35	---	5.1-6.5	0	0	0	0
	33-45	15-35	---	5.6-6.5	0	0	0	0
	45-53	15-35	---	5.6-7.3	0	0	0	0
	53-60	20-30	---	5.6-7.3	0	0	0	0

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
171:								
Willamette-----------	0-6	15-25	---	4.5-6.5	0	0	0	0
	6-13	15-25	---	4.5-6.5	0	0	0	0
	13-24	12-23	---	5.1-6.5	0	0	0	0
	24-33	15-35	---	5.1-6.5	0	0	0	0
	33-45	15-35	---	5.6-6.5	0	0	0	0
	45-53	15-35	---	5.6-7.3	0	0	0	0
	53-60	20-30	---	5.6-7.3	0	0	0	0
172:								
Witham---------------	0-4	30-45	---	5.1-6.5	0	0	0	0
	4-12	35-65	---	5.1-6.5	0	0	0	0
	12-21	35-65	---	5.6-6.5	0	0	0	0
	21-29	35-65	---	5.6-6.5	0	0	0	0
	29-60	35-65	---	5.6-6.5	0	0	0	0
173:								
Witham---------------	0-4	30-45	---	5.1-6.5	0	0	0	0
	4-12	35-65	---	5.1-6.5	0	0	0	0
	12-21	35-65	---	5.6-6.5	0	0	0	0
	21-29	35-65	---	5.6-6.5	0	0	0	0
	29-60	35-65	---	5.6-6.5	0	0	0	0
174:								
Witzel---------------	0-4	15-25	---	5.6-6.5	0	0	0	0
	4-11	20-30	---	5.6-6.5	0	0	0	0
	11-17	20-30	---	5.6-6.5	0	0	0	0
	17-21	---	---	---	---	---	---	---
Ritner---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	35-55	---	5.6-6.0	0	0	0	0
	6-16	30-55	---	5.6-6.0	0	0	0	0
	16-25	30-55	---	5.1-6.0	0	0	0	0
	25-39	30-55	---	5.1-6.0	0	0	0	0
	39-43	---	---	---	---	---	---	---
175:								
Witzel---------------	0-4	15-25	---	5.6-6.5	0	0	0	0
	4-11	20-30	---	5.6-6.5	0	0	0	0
	11-17	20-30	---	5.6-6.5	0	0	0	0
	17-21	---	---	---	---	---	---	---
Ritner---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	35-55	---	5.6-6.0	0	0	0	0
	6-16	30-55	---	5.6-6.0	0	0	0	0
	16-25	30-55	---	5.1-6.0	0	0	0	0
	25-39	30-55	---	5.1-6.0	0	0	0	0
	39-43	---	---	---	---	---	---	---
176:								
Witzel---------------	0-4	15-25	---	5.6-6.5	0	0	0	0
	4-11	20-30	---	5.6-6.5	0	0	0	0
	11-17	20-30	---	5.6-6.5	0	0	0	0
	17-21	---	---	---	---	---	---	---
Ritner---------------	0-1	---	30-40	3.5-5.5	0	0	0	0
	1-6	35-55	---	5.6-6.0	0	0	0	0
	6-16	30-55	---	5.6-6.0	0	0	0	0
	16-25	30-55	---	5.1-6.0	0	0	0	0
	25-39	30-55	---	5.1-6.0	0	0	0	0
	39-43	---	---	---	---	---	---	---

Table 24.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
177:								
Woodburn-------------	0-9	15-25	---	5.1-6.5	0	0	0	0
	9-17	15-25	---	5.1-6.5	0	0	0	0
	17-25	15-35	---	5.6-6.5	0	0	0	0
	25-32	15-35	---	5.6-6.5	0	0	0	0
	32-39	15-35	---	5.6-7.3	0	0	0	0
	39-54	15-35	---	5.6-7.3	0	0	0	0
	54-68	15-30	---	5.6-7.3	0	0	0	0
	68-80	10-20	---	5.6-7.3	0	0	0	0
	80-92	10-20	---	5.6-7.3	0	0	0	0
178:								
Woodburn-------------	0-9	15-25	---	5.1-6.5	0	0	0	0
	9-17	15-25	---	5.1-6.5	0	0	0	0
	17-25	15-35	---	5.6-6.5	0	0	0	0
	25-32	15-35	---	5.6-6.5	0	0	0	0
	32-39	15-35	---	5.6-7.3	0	0	0	0
	39-54	15-35	---	5.6-7.3	0	0	0	0
	54-68	15-30	---	5.6-7.3	0	0	0	0
	68-80	10-20	---	5.6-7.3	0	0	0	0
	80-92	10-20	---	5.6-7.3	0	0	0	0
179:								
Woodburn-------------	0-9	15-25	---	5.1-6.5	0	0	0	0
	9-17	15-25	---	5.1-6.5	0	0	0	0
	17-25	15-35	---	5.6-6.5	0	0	0	0
	25-32	15-35	---	5.6-6.5	0	0	0	0
	32-39	15-35	---	5.6-7.3	0	0	0	0
	39-54	15-35	---	5.6-7.3	0	0	0	0
	54-68	15-30	---	5.6-7.3	0	0	0	0
	68-80	10-20	---	5.6-7.3	0	0	0	0
	80-92	10-20	---	5.6-7.3	0	0	0	0
180:								
Woodburn-------------	0-9	15-25	---	5.1-6.5	0	0	0	0
	9-17	15-25	---	5.1-6.5	0	0	0	0
	17-25	15-35	---	5.6-6.5	0	0	0	0
	25-32	15-35	---	5.6-6.5	0	0	0	0
	32-39	15-35	---	5.6-7.3	0	0	0	0
	39-54	15-35	---	5.6-7.3	0	0	0	0
	54-68	15-30	---	5.6-7.3	0	0	0	0
	68-80	10-20	---	5.6-7.3	0	0	0	0
	80-92	10-20	---	5.6-7.3	0	0	0	0

Table 25.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
1:										
Abiqua	B	---								
			Jan-Dec	---	---	---	---	None	---	None
2:										
Abiqua	B	---								
			Jan-Dec	---	---	---	---	None	---	None
3:										
Abiqua, high precipitation	B	---								
			Jan-Dec	---	---	---	---	None	---	None
4:										
Abiqua, high precipitation	B	---								
			Jan-Dec	---	---	---	---	None	---	None
5:										
Abiqua, rarely flooded	B	---								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	Rare

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
6:										
Alsea	B	---								
			January	2.8-4.3	>6.0	---	---	None	---	None
			February	2.8-4.3	>6.0	---	---	None	---	None
			March	2.8-4.3	>6.0	---	---	None	---	None
			April	2.8-4.3	>6.0	---	---	None	---	None
			May	4.3-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	4.3-6.0	>6.0	---	---	None	---	None
			December	2.8-4.3	>6.0	---	---	None	---	None
7:										
Alsea, rarely flooded	B	---								
			January	2.8-4.3	>6.0	---	---	None	---	Rare
			February	2.8-4.3	>6.0	---	---	None	---	Rare
			March	2.8-4.3	>6.0	---	---	None	---	Rare
			April	2.8-4.3	>6.0	---	---	None	---	None
			May	2.8-4.3	>6.0	---	---	None	---	None
			June	4.3-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	4.3-6.0	>6.0	---	---	None	---	None
			December	2.8-4.3	>6.0	---	---	None	---	Rare
8:										
Amity	C	---								
			January	1.3-1.8	>6.0	---	---	None	---	None
			February	1.3-1.8	>6.0	---	---	None	---	None
			March	1.3-1.8	>6.0	---	---	None	---	None
			April	1.3-1.8	>6.0	---	---	None	---	None
			May	2.3-2.9	>6.0	---	---	None	---	None
			June	2.9-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.3-1.8	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
9:										
Apt	B	---								
			Jan-Dec	---	---	---	---	None	---	None
McDuff	C	---								
			Jan-Dec	---	---	---	---	None	---	None
10:										
Apt	B	---								
			Jan-Dec	---	---	---	---	None	---	None
McDuff	C	---								
			Jan-Dec	---	---	---	---	None	---	None
11:										
Aquents	D	---								
			January	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			February	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			March	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			April	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			May	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			June	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			July	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			August	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			September	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			October	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			November	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
			December	0.0-0.8	>6.0	0.0-3.0	Very long	Frequent	---	None
12:										
Awbrig	D	---								
			January	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
			February	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
			March	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
			April	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
			May	0.6-1.5	>6.0	---	---	None	---	None
			June	2.4-4.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0-0.6	0.4-1.0	---	---	None	---	None
			December	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
13:										
Bashaw, nonflooded	D	---								
			January	0.0-0.3	>6.0	---	---	None	---	None
			February	0.0-0.3	>6.0	---	---	None	---	None
			March	0.0-0.3	>6.0	---	---	None	---	None
			April	0.0-0.3	>6.0	---	---	None	---	None
			May	0.0-0.3	>6.0	---	---	None	---	None
			June	0.3-0.9	>6.0	---	---	None	---	None
			July	0.9-2.3	>6.0	---	---	None	---	None
			August	2.3-3.7	>6.0	---	---	None	---	None
			September	3.7-6.0	>6.0	---	---	None	---	None
			October	3.7-6.0	>6.0	---	---	None	---	None
			November	0.0-2.3	>6.0	---	---	None	---	None
				3.7-6.0						
			December	0.0-0.3	>6.0	---	---	None	---	None
14:										
Bashaw, flooded	D	---								
			January	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	Long	Frequent
			February	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	Long	Frequent
			March	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	Long	Frequent
			April	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	Long	Frequent
			May	0.0-0.3	>6.0	---	---	None	---	None
			June	0.3-1.2	>6.0	---	---	None	---	None
			July	1.2-2.6	>6.0	---	---	None	---	None
			August	2.6-4.0	>6.0	---	---	None	---	None
			September	4.0-6.0	>6.0	---	---	None	---	None
			October	4.0-6.0	>6.0	---	---	None	---	None
			November	0.0-2.6	0.0-2.6	---	---	None	---	None
				4.0-6.0	>6.0					
			December	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	Long	Frequent

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
15:										
Bashaw, nonflooded--------	D	---								
			January	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
			February	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
			March	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
			April	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
			May	0.0-0.3	>6.0	---	---	None	---	None
			June	0.3-0.9	>6.0	---	---	None	---	None
			July	0.9-2.3	>6.0	---	---	None	---	None
			August	2.3-3.7	>6.0	---	---	None	---	None
			September	3.7-6.0	>6.0	---	---	None	---	None
			October	3.7-6.0	>6.0	---	---	None	---	None
			November	0.0-2.3	>6.0	---	---	None	---	None
				3.7-6.0						
			December	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
16:										
Bashaw, nonflooded--------	D	---								
			January	0.0-0.4	>6.0	0.0-1.0	Very long	Frequent	---	None
			February	0.0-0.4	>6.0	0.0-1.0	Very long	Frequent	---	None
			March	0.0-0.4	>6.0	0.0-1.0	Very long	Frequent	---	None
			April	0.0-0.4	>6.0	0.0-1.0	Very long	Frequent	---	None
			May	0.0-0.4	>6.0	---	---	None	---	None
			June	0.4-1.2	>6.0	---	---	None	---	None
			July	1.2-3.2	>6.0	---	---	None	---	None
			August	3.2-4.2	>6.0	---	---	None	---	None
			September	4.2-6.0	>6.0	---	---	None	---	None
			October	4.2-6.0	>6.0	---	---	None	---	None
			November	0.0-3.2	0.0-3.2	---	---	None	---	None
				4.2-6.0	>6.0					
			December	0.0-0.4	>6.0	0.0-1.0	Very long	Frequent	---	None
17:										
Bellpine-----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
18:										
Bellpine-----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
19:										
Bellpine	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
20:										
Bellpine	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
21:										
Blachly	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Kilowan	C	---								
			Jan-Dec	---	---	---	---	None	---	None
22:										
Blachly	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Kilowan	C	---								
			Jan-Dec	---	---	---	---	None	---	None
23:										
Bohannon	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Preacher	B	---								
			Jan-Dec	---	---	---	---	None	---	None
24:										
Bohannon	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Preacher	B	---								
			Jan-Dec	---	---	---	---	None	---	None
25:										
Briedwell	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
26:										
Briedwell	B	---								
			Jan-Dec	---	---	---	---	None	---	None
27:										
Burntwoods	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Oldblue	B	---								
			Jan-Dec	---	---	---	---	None	---	None
28:										
Camas	A	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
29:										
Camas, rarely flooded	A	---								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
30:										
Caterl	B	High								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
30:										
Laderly	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Romanose	D	Very high	Jan-Dec	---	---	---	---	None	---	None
31:										
Caterl	B	High	Jan-Dec	---	---	---	---	None	---	None
Laderly	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Romanose	D	Very high	Jan-Dec	---	---	---	---	None	---	None
32:										
Caterl	B	High	Jan-Dec	---	---	---	---	None	---	None
Murtip	B	High	Jan-Dec	---	---	---	---	None	---	None
Giveout	C	High	Jan-Dec	---	---	---	---	None	---	None
33:										
Caterl	B	High	Jan-Dec	---	---	---	---	None	---	None
Murtip	B	High	Jan-Dec	---	---	---	---	None	---	None
Laderly	C	Very high	Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
34:										
Chapman-------------------	B	---								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
35:										
Chapman, high precipitation------------	B	---								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
36:										
Chehalem------------------	C	---								
			January	0.9-1.9	>6.0	---	---	None	---	None
			February	0.9-1.9	>6.0	---	---	None	---	None
			March	0.9-1.9	>6.0	---	---	None	---	None
			April	0.9-1.9	>6.0	---	---	None	---	None
			May	3.0-4.1	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.9-1.9	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
37:										
Chehalem	C	---								
			January	0.9-1.9	>6.0	---	---	None	---	None
			February	0.9-1.9	>6.0	---	---	None	---	None
			March	0.9-1.9	>6.0	---	---	None	---	None
			April	0.9-1.9	>6.0	---	---	None	---	None
			May	3.0-4.1	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.9-1.9	>6.0	---	---	None	---	None
38:										
Chehalis	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
39:										
Chehalis, high precipitation	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
40:										
Chehalis------------------	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
41:										
Chintimini----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Blodgett------------------	D	---								
			Jan-Dec	---	---	---	---	None	---	None
42:										
Chintimini----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Blodgett------------------	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Fiverivers----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
43:										
Chintimini----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Grassmountain-------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
44:										
Chismore	D	---								
			January	1.8-2.5	>6.0	---	---	None	---	None
			February	1.8-2.5	>6.0	---	---	None	---	None
			March	1.8-2.5	>6.0	---	---	None	---	None
			April	2.5-3.6	>6.0	---	---	None	---	None
			May	2.5-3.6	>6.0	---	---	None	---	None
			June	3.6-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	3.6-6.0	>6.0	---	---	None	---	None
			October	2.5-3.6	>6.0	---	---	None	---	None
			November	2.5-3.6	>6.0	---	---	None	---	None
			December	1.8-2.5	>6.0	---	---	None	---	None
Pyburn	D	---								
			January	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			February	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			March	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			April	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			May	0.0-1.1	>6.0	---	---	None	---	None
			June	1.1-1.7	>6.0	---	---	None	---	None
			July	1.7-3.0	>6.0	---	---	None	---	None
			August	4.0-6.0	>6.0	---	---	None	---	None
			September	4.0-6.0	>6.0	---	---	None	---	None
			October	1.7-3.0	>6.0	---	---	None	---	None
			November	1.1-1.7	>6.0	---	---	None	---	None
			December	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
45:										
Chismore	D	---								
			January	1.8-2.5	>6.0	---	---	None	---	None
			February	1.8-2.5	>6.0	---	---	None	---	None
			March	1.8-2.5	>6.0	---	---	None	---	None
			April	2.5-3.6	>6.0	---	---	None	---	None
			May	2.5-3.6	>6.0	---	---	None	---	None
			June	3.6-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	3.6-6.0	>6.0	---	---	None	---	None
			October	2.5-3.6	>6.0	---	---	None	---	None
			November	2.5-3.6	>6.0	---	---	None	---	None
			December	1.8-2.5	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
45:										
Pyburn	D	---								
			January	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			February	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			March	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			April	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
			May	0.0-1.1	>6.0	---	---	None	---	None
			June	1.1-1.7	>6.0	---	---	None	---	None
			July	1.7-3.0	>6.0	---	---	None	---	None
			August	4.0-6.0	>6.0	---	---	None	---	None
			September	4.0-6.0	>6.0	---	---	None	---	None
			October	1.7-3.0	>6.0	---	---	None	---	None
			November	1.1-1.7	>6.0	---	---	None	---	None
			December	0.0-1.1	>6.0	0.0-0.5	Brief	Occasional	---	None
46:										
Cloquato	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
47:										
Cloquato, high precipitation	B	---								
			January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
48:										
Coburg, occasionally flooded	C	---								
			January	2.3-3.6	>6.0	---	---	None	Brief	Occasional
			February	2.3-3.6	>6.0	---	---	None	Brief	Occasional
			March	2.3-3.6	>6.0	---	---	None	Brief	Occasional
			April	3.6-6.0	>6.0	---	---	None	Brief	Occasional
			May	3.6-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.3	>6.0	---	---	None	Brief	Occasional
Coburg, rarely flooded	C	---								
			January	2.0-2.8	>6.0	---	---	None	---	Rare
			February	2.0-2.8	>6.0	---	---	None	---	Rare
			March	2.0-2.8	>6.0	---	---	None	---	Rare
			April	2.8-3.4	>6.0	---	---	None	---	Rare
			May	3.4-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	Rare
49:										
Coburg	C	---								
			January	2.3-3.4	>6.0	---	---	None	---	None
			February	2.3-3.4	>6.0	---	---	None	---	None
			March	2.3-3.4	>6.0	---	---	None	---	None
			April	3.4-4.4	>6.0	---	---	None	---	None
			May	4.4-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.3-3.4	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
50:										
Coburg, rarely flooded	C	---								
			January	2.0-2.8	>6.0	---	---	None	---	Rare
			February	2.0-2.8	>6.0	---	---	None	---	Rare
			March	2.0-2.8	>6.0	---	---	None	---	Rare
			April	2.8-3.4	>6.0	---	---	None	---	Rare
			May	3.4-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	Rare
51:										
Concord	D	---								
			January	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
			February	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
			March	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
			April	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
			May	1.2-1.6	>6.0	---	---	None	---	None
			June	2.4-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
52:										
Conser	D	---								
			January	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	Rare
			February	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	Rare
			March	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	Rare
			April	0.0-0.8	>6.0	---	---	None	---	Rare
			May	1.2-2.3	>6.0	---	---	None	---	None
			June	3.4-4.1	>6.0	---	---	None	---	None
			July	4.1-6.0	>6.0	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	3.4-4.1	>6.0	---	---	None	---	None
			December	0.0-0.8	>6.0	---	---	None	---	Rare

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
53:										
Dayton	D	---								
			January	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
			February	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
			March	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
			April	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
			May	1.2-1.8	>6.0	---	---	None	---	None
			June	3.3-4.4	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0-1.2	1.0-2.0	---	---	None	---	None
			December	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
54:										
Dayton, clay substratum	D	---								
			January	0.0-0.6	>6.0	0.0-1.0	Long	Frequent	---	None
			February	0.0-0.6	>6.0	0.0-1.0	Long	Frequent	---	None
			March	0.0-0.6	>6.0	0.0-1.0	Long	Frequent	---	None
			April	0.0-0.6	>6.0	0.0-1.0	Long	Frequent	---	None
			May	1.3-2.5	>6.0	---	---	None	---	None
			June	3.7-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0-1.3	1.0-2.0	---	---	None	---	None
			December	0.0-0.6	>6.0	0.0-1.0	Long	Frequent	---	None
55:										
Digger	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Bohannon	C	---								
			Jan-Dec	---	---	---	---	None	---	None
56:										
Digger	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Remote	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
56:										
Umpcoos	D	---								
			Jan-Dec	---	---	---	---	None	---	None
57:										
Digger	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Umpcoos	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Remote	B	---								
			Jan-Dec	---	---	---	---	None	---	None
58:										
Dixonville	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Gellatly	C	---								
			Jan-Dec	---	---	---	---	None	---	None
59:										
Dixonville	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Gellatly	C	---								
			Jan-Dec	---	---	---	---	None	---	None
60:										
Dixonville	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Gellatly	C	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
60:										
Witham	D	---								
			January	1.0-1.7	>6.0	---	---	None	---	None
			February	1.0-1.7	>6.0	---	---	None	---	None
			March	1.0-1.7	>6.0	---	---	None	---	None
			April	1.0-1.7	>6.0	---	---	None	---	None
			May	2.4-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.0-1.7	>6.0	---	---	None	---	None
61:										
Dupee	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None
62:										
Dupee	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
63:										
Elsie	B	---								
			Jan-Dec	---	---	---	---	None	---	None
64:										
Elsie	B	---								
			Jan-Dec	---	---	---	---	None	---	None
65:										
Fiverivers	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Grassmountain	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Chintimini	B	---								
			Jan-Dec	---	---	---	---	None	---	None
66:										
Fluvents	A	---								
			January	---	---	---	---	None	Long	Frequent
			February	---	---	---	---	None	Long	Frequent
			March	---	---	---	---	None	Long	Frequent
			April	---	---	---	---	None	Long	Frequent
			May	---	---	---	---	None	Long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Long	Frequent
			December	---	---	---	---	None	Long	Frequent

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
66:										
Fluvaquents	D	---								
			January	0.7-2.0	>6.0	---	---	None	Long	Frequent
			February	0.7-2.0	>6.0	---	---	None	Long	Frequent
			March	0.7-2.0	>6.0	---	---	None	Long	Frequent
			April	0.7-2.0	>6.0	---	---	None	Long	Frequent
			May	2.0-6.0	>6.0	---	---	None	Long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.0-6.0	>6.0	---	---	None	Long	Frequent
			December	0.7-2.0	>6.0	---	---	None	Long	Frequent
67:										
Fluvents, high precipitation	A	---								
			January	---	---	---	---	None	Brief	Frequent
			February	---	---	---	---	None	Brief	Frequent
			March	---	---	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Frequent
			December	---	---	---	---	None	Brief	Frequent
Fluvaquents, high precipitation	D	---								
			January	0.7-2.0	>6.0	---	---	None	Brief	Frequent
			February	0.7-2.0	>6.0	---	---	None	Brief	Frequent
			March	0.7-2.0	>6.0	---	---	None	Brief	Frequent
			April	0.7-2.0	>6.0	---	---	None	Brief	Frequent
			May	2.0-6.0	>6.0	---	---	None	Brief	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.0-6.0	>6.0	---	---	None	Brief	Frequent
			December	0.7-2.0	>6.0	---	---	None	Brief	Frequent

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
68:										
Formader	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Hemcross	B	---								
			Jan-Dec	---	---	---	---	None	---	None
69:										
Formader	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Hemcross	B	---								
			Jan-Dec	---	---	---	---	None	---	None
70:										
Formader	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Klistan	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Hemcross	B	---								
			Jan-Dec	---	---	---	---	None	---	None
71:										
Gelderman	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Jory, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
72:										
Goodin	C	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
72:										
Dupee	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None
Chehulpum	D	---								
			Jan-Dec	---	---	---	---	None	---	None
73:										
Goodin	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Chehulpum	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Dupee	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None
74:										
Grassmountain	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Fiverivers	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
74:										
Chintimini	B	---								
			Jan-Dec	---	---	---	---	None	---	None
75:										
Harslow	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Kilchis	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	---								
			Jan-Dec	---	---	---	---	None	---	None
76:										
Harslow	C	High								
			Jan-Dec	---	---	---	---	None	---	None
Klistan	B	High								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Very high								
			Jan-Dec	---	---	---	---	None	---	None
77:										
Hazelair	D	---								
			January	0.9-1.5	1.7-3.3	---	---	None	---	None
			February	0.9-1.5	1.7-3.3	---	---	None	---	None
			March	0.9-1.5	1.7-3.3	---	---	None	---	None
			April	0.9-1.5	1.7-3.3	---	---	None	---	None
			May	1.5-2.0	1.7-3.3	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.9-1.5	1.0-2.0	---	---	None	---	None
			December	0.9-1.5	1.7-3.3	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
78:										
Hazelair	D	---								
			January	0.9-1.5	1.7-3.3	---	---	None	---	None
			February	0.9-1.5	1.7-3.3	---	---	None	---	None
			March	0.9-1.5	1.7-3.3	---	---	None	---	None
			April	0.9-1.5	1.7-3.3	---	---	None	---	None
			May	1.5-2.0	1.7-3.3	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.9-1.5	1.0-2.0	---	---	None	---	None
			December	0.9-1.5	1.7-3.3	---	---	None	---	None
79:										
Hazelair	D	---								
			January	0.9-1.5	1.7-3.3	---	---	None	---	None
			February	0.9-1.5	1.7-3.3	---	---	None	---	None
			March	0.9-1.5	1.7-3.3	---	---	None	---	None
			April	0.9-1.5	1.7-3.3	---	---	None	---	None
			May	1.5-2.0	1.7-3.3	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.9-1.5	1.0-2.0	---	---	None	---	None
			December	0.9-1.5	1.7-3.3	---	---	None	---	None
80:										
Hazelair	D	---								
			January	0.9-1.2	1.7-3.3	---	---	None	---	None
			February	0.9-1.2	1.7-3.3	---	---	None	---	None
			March	0.9-1.2	1.7-3.3	---	---	None	---	None
			April	0.9-1.2	1.7-3.3	---	---	None	---	None
			May	1.2-1.7	1.7-3.3	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.9-1.2	1.0-2.0	---	---	None	---	None
			December	0.9-1.2	1.7-3.3	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
81:										
Helmick-------------------	D	---								
			January	0.8-1.3	>6.0	---	---	None	---	None
			February	0.8-1.3	>6.0	---	---	None	---	None
			March	0.8-1.3	>6.0	---	---	None	---	None
			April	0.8-1.3	>6.0	---	---	None	---	None
			May	2.3-3.0	>6.0	---	---	None	---	None
			June	4.2-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.8-1.3	1.0-2.3	---	---	None	---	None
			December	0.8-1.3	>6.0	---	---	None	---	None
82:										
Helvetia------------------	C	---								
			January	4.0-6.0	>6.0	---	---	None	---	None
			February	4.0-6.0	>6.0	---	---	None	---	None
			March	4.0-6.0	>6.0	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	4.0-6.0	>6.0	---	---	None	---	None
83:										
Hemcross------------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Klistan-------------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
84:										
Hemcross------------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Klistan-------------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
85:										
Holcomb------------------	D	---								
			January	1.5-2.0	>6.0	---	---	None	---	None
			February	1.5-2.0	>6.0	---	---	None	---	None
			March	1.5-2.0	>6.0	---	---	None	---	None
			April	1.5-2.0	>6.0	---	---	None	---	None
			May	2.0-2.8	>6.0	---	---	None	---	None
			June	4.2-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.5-2.0	1.5-2.5	---	---	None	---	None
			December	1.5-2.0	>6.0	---	---	None	---	None
86:										
Honeygrove----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Peavine, sedimentary bedrock-----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
87:										
Honeygrove----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Peavine, sedimentary bedrock-----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
88:										
Honeygrove, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Peavine, basalt bedrock---	B	---								
			Jan-Dec	---	---	---	---	None	---	None
89:										
Honeygrove, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Peavine, basalt bedrock---	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
90:										
Honeygrove, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Shivigny------------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
91:										
Jory, basalt bedrock------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
92:										
Jory, basalt bedrock------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
93:										
Jory, basalt bedrock------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
94:										
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
95:										
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
96:										
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
97:										
Jory, sedimentary bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
97:										
Dupee	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None
98:										
Jory, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Gelderman	B	---								
			Jan-Dec	---	---	---	---	None	---	None
99:										
Jory, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Nekia	B	---								
			Jan-Dec	---	---	---	---	None	---	None
100:										
Jory, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Nekia	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
101:										
Kirkendall	C	---								
			January	3.0-3.9	>6.0	---	---	None	Brief	Occasional
			February	3.0-3.9	>6.0	---	---	None	Brief	Occasional
			March	3.0-3.9	>6.0	---	---	None	Brief	Occasional
			April	3.9-6.0	>6.0	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	3.9-6.0	>6.0	---	---	None	Brief	Occasional
Nekoma	B	---								
			January	4.0-6.0	>6.0	---	---	None	Brief	Frequent
			February	---	---	---	---	None	Brief	Frequent
			March	---	---	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Frequent
			December	4.0-6.0	>6.0	---	---	None	Brief	Frequent
Quosatana	D	---								
			January	0.0-1.2	>6.0	---	---	None	Brief	Frequent
			February	0.0-1.2	>6.0	---	---	None	Brief	Frequent
			March	0.0-1.2	>6.0	---	---	None	Brief	Frequent
			April	0.0-1.2	>6.0	---	---	None	Brief	Frequent
			May	1.2-3.2	>6.0	---	---	None	---	None
			June	3.2-4.0	>6.0	---	---	None	---	None
			July	4.0-6.0	>6.0	---	---	None	---	None
			August	4.0-6.0	>6.0	---	---	None	---	None
			September	4.0-6.0	>6.0	---	---	None	---	None
			October	3.2-4.0	>6.0	---	---	None	---	None
			November	1.2-3.2	>6.0	---	---	None	Brief	Frequent
			December	0.0-1.2	>6.0	---	---	None	Brief	Frequent

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
102:										
Klistan	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Harslow	C	---								
			Jan-Dec	---	---	---	---	None	---	None
103:										
Klistan	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Harslow	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Hemcross	B	---								
			Jan-Dec	---	---	---	---	None	---	None
104:										
Laderly	C	Very high								
			Jan-Dec	---	---	---	---	None	---	None
Murtip	B	High								
			Jan-Dec	---	---	---	---	None	---	None
Giveout	C	High								
			Jan-Dec	---	---	---	---	None	---	None
105:										
Linslaw	C	---								
			January	1.3-2.3	>6.0	---	---	None	---	Rare
			February	1.3-2.3	>6.0	---	---	None	---	Rare
			March	1.3-2.3	>6.0	---	---	None	---	Rare
			April	1.3-2.3	>6.0	---	---	None	---	None
			May	3.5-4.7	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.3-2.3	>6.0	---	---	None	---	Rare

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
106:										
Linslaw	C	---								
			January	1.3-2.3	>6.0	---	---	None	---	Rare
			February	1.3-2.3	>6.0	---	---	None	---	Rare
			March	1.3-2.3	>6.0	---	---	None	---	Rare
			April	1.3-2.3	>6.0	---	---	None	---	None
			May	3.5-4.7	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.3-2.3	>6.0	---	---	None	---	Rare
107:										
Lurnick	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Luckiamute	D	---								
			Jan-Dec	---	---	---	---	None	---	None
108:										
Lurnick	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Luckiamute	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Maryspeak	B	---								
			Jan-Dec	---	---	---	---	None	---	None
109:										
MacDunn	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Price	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Ritner	B	---								
			Jan-Dec	---	---	---	---	None	---	None
110:										
Malabon	C	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
111:										
Malabon, rarely flooded---	C	---								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	Rare
112:										
Maryspeak-----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
113:										
McAlpin-------------------	C	---								
			January	1.9-3.1	>6.0	---	---	None	---	None
			February	1.9-3.1	>6.0	---	---	None	---	None
			March	3.1-4.3	>6.0	---	---	None	---	None
			April	4.3-6.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.9-3.1	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
114:										
McAlpin	C	---								
			January	1.9-3.1	>6.0	---	---	None	---	None
			February	1.9-3.1	>6.0	---	---	None	---	None
			March	3.1-4.3	>6.0	---	---	None	---	None
			April	4.3-6.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.9-3.1	>6.0	---	---	None	---	None
115:										
McAlpin, high precipitation	C	---								
			January	1.9-3.1	>6.0	---	---	None	---	None
			February	1.9-3.1	>6.0	---	---	None	---	None
			March	1.9-3.1	>6.0	---	---	None	---	None
			April	3.1-4.3	>6.0	---	---	None	---	None
			May	4.3-5.4	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	4.3-5.4	>6.0	---	---	None	---	None
			November	3.1-4.3	>6.0	---	---	None	---	None
			December	1.9-3.1	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
116:										
McAlpin, high precipitation------------	C	---								
			January	1.9-3.1	>6.0	---	---	None	---	None
			February	1.9-3.1	>6.0	---	---	None	---	None
			March	1.9-3.1	>6.0	---	---	None	---	None
			April	3.1-4.3	>6.0	---	---	None	---	None
			May	4.3-5.4	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	4.3-5.4	>6.0	---	---	None	---	None
			November	3.1-4.3	>6.0	---	---	None	---	None
			December	1.9-3.1	>6.0	---	---	None	---	None
117:										
McAlpin, rarely flooded---	C	---								
			January	1.8-2.6	>6.0	---	---	None	---	Rare
			February	1.8-2.6	>6.0	---	---	None	---	Rare
			March	1.8-2.6	>6.0	---	---	None	---	Rare
			April	2.6-4.5	>6.0	---	---	None	---	Rare
			May	4.5-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.8-2.6	>6.0	---	---	None	---	Rare
118:										
McBee---------------------	C	---								
			January	0.8-1.8	>6.0	---	---	None	Brief	Occasional
			February	0.8-1.8	>6.0	---	---	None	Brief	Occasional
			March	0.8-1.8	>6.0	---	---	None	Brief	Occasional
			April	1.8-2.9	>6.0	---	---	None	Brief	Occasional
			May	3.5-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	0.8-1.8	>6.0	---	---	None	Brief	Occasional

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
119:										
McBee, nonflooded---------	C	---								
			January	0.5-1.0	>6.0	---	---	None	---	None
			February	0.5-1.0	>6.0	---	---	None	---	None
			March	0.5-1.0	>6.0	---	---	None	---	None
			April	1.0-2.1	>6.0	---	---	None	---	None
			May	3.3-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.5-1.0	>6.0	---	---	None	---	None
120:										
Meda----------------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Treharne------------------	C	---								
			January	1.7-2.7	>6.0	---	---	None	---	None
			February	1.7-2.7	>6.0	---	---	None	---	None
			March	1.7-2.7	>6.0	---	---	None	---	None
			April	1.7-2.7	>6.0	---	---	None	---	None
			May	2.7-6.0	>6.0	---	---	None	---	None
			June	2.7-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	2.7-6.0	>6.0	---	---	None	---	None
			November	2.7-6.0	>6.0	---	---	None	---	None
			December	1.7-2.7	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
120:										
Wasson	D	---								
			January	0.2-0.9	>6.0	---	---	None	Brief	Occasional
			February	0.2-0.9	>6.0	---	---	None	Brief	Occasional
			March	0.2-0.9	>6.0	---	---	None	Brief	Occasional
			April	0.9-1.2	>6.0	---	---	None	---	None
			May	0.9-1.2	>6.0	---	---	None	---	None
			June	1.2-2.8	>6.0	---	---	None	---	None
			July	2.8-6.0	>6.0	---	---	None	---	None
			August	2.8-6.0	>6.0	---	---	None	---	None
			September	2.8-6.0	>6.0	---	---	None	---	None
			October	1.2-2.8	>6.0	---	---	None	---	None
			November	0.9-1.2	>6.0	---	---	None	---	None
			December	0.2-0.9	>6.0	---	---	None	Brief	Occasional
121:										
Mulkey	C	---								
			Jan-Dec	---	---	---	---	None	---	None
122:										
Mulkey	C	---								
			Jan-Dec	---	---	---	---	None	---	None
123:										
Murtip	B	High								
			Jan-Dec	---	---	---	---	None	---	None
Giveout	C	High								
			Jan-Dec	---	---	---	---	None	---	None
Laderly	C	Very high								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
124:										
Nekoma	B	---								
			January	4.0-6.0	>6.0	---	---	None	Brief	Frequent
			February	---	---	---	---	None	Brief	Frequent
			March	---	---	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Frequent
			December	4.0-6.0	>6.0	---	---	None	Brief	Frequent
Fluvaquents	D	---								
			January	0.6-2.3	>6.0	---	---	None	Brief	Frequent
			February	0.6-2.3	>6.0	---	---	None	Brief	Frequent
			March	0.6-2.3	>6.0	---	---	None	Brief	Frequent
			April	0.6-2.3	>6.0	---	---	None	Brief	Frequent
			May	2.3-3.7	>6.0	---	---	None	---	None
			June	3.7-6.0	>6.0	---	---	None	---	None
			July	3.7-6.0	>6.0	---	---	None	---	None
			August	3.7-6.0	>6.0	---	---	None	---	None
			September	3.7-6.0	>6.0	---	---	None	---	None
			October	3.7-6.0	>6.0	---	---	None	---	None
			November	2.3-3.7	>6.0	---	---	None	Brief	Frequent
			December	0.6-2.3	>6.0	---	---	None	Brief	Frequent
125:										
Newberg	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
126:										
Newberg, high precipitation	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
127:										
Newberg	B	---								
			January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
128:										
Oldblue	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Burntwoods	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
129:										
Panther	D	---								
			January	0.0-0.7	3.3-5.0	---	---	None	---	None
			February	0.0-0.7	3.3-5.0	---	---	None	---	None
			March	0.0-0.7	3.3-5.0	---	---	None	---	None
			April	0.0-0.7	3.3-5.0	---	---	None	---	None
			May	0.7-1.2	3.3-5.0	---	---	None	---	None
			June	3.0-3.7	3.3-5.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.7-1.2	0.8-2.0	---	---	None	---	None
			December	0.0-0.7	3.3-5.0	---	---	None	---	None
130:										
Pengra	D	---								
			January	0.5-1.1	>6.0	---	---	None	---	None
			February	0.5-1.1	>6.0	---	---	None	---	None
			March	0.5-1.1	>6.0	---	---	None	---	None
			April	0.5-1.1	>6.0	---	---	None	---	None
			May	1.7-3.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.5-1.7	1.2-2.5	---	---	None	---	None
			December	0.5-1.1	>6.0	---	---	None	---	None
131:										
Philomath	D	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
132:										
Pilchuck	A	---								
			January	---	---	---	---	None	Brief	Frequent
			February	---	---	---	---	None	Brief	Frequent
			March	---	---	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	Brief	Frequent
			December	---	---	---	---	None	Brief	Frequent
133:										
Pits	---	---								
			Jan-Dec	---	---	---	---	None	---	None
134:										
Preacher	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Blachly	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Bohannon	C	---								
			Jan-Dec	---	---	---	---	None	---	None
135:										
Preacher	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Bohannon	C	---								
			Jan-Dec	---	---	---	---	None	---	None
136:										
Preacher	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Bohannon	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Slickrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
137:										
Price	B	---								
			Jan-Dec	---	---	---	---	None	---	None
MacDunn	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Ritner	B	---								
			Jan-Dec	---	---	---	---	None	---	None
138:										
Riverwash	D	---								
			January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			August	0.0-2.0	>6.0	---	---	None	---	None
			September	0.0-2.0	>6.0	---	---	None	---	None
			October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
139:										
Salem	B	---								
			Jan-Dec	---	---	---	---	None	---	None
140:										
Santiam	C	---								
			January	1.8-2.5	>6.0	---	---	None	---	None
			February	1.8-2.5	>6.0	---	---	None	---	None
			March	1.8-2.5	>6.0	---	---	None	---	None
			April	2.5-6.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.8-2.5	2.1-4.2	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
141:										
Santiam------------------	C	---								
			January	1.8-2.5	>6.0	---	---	None	---	None
			February	1.8-2.5	>6.0	---	---	None	---	None
			March	1.8-2.5	>6.0	---	---	None	---	None
			April	2.5-6.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.8-2.5	2.1-4.2	---	---	None	---	None
142:										
Sevencedars---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Newanna------------------	C	---								
			Jan-Dec	---	---	---	---	None	---	None
143:										
Sevencedars---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Newanna------------------	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Woodspoint----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
144:										
Sevencedars---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Newanna------------------	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Woodspoint----------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
145:										
Shivigny	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Honeygrove, basalt bedrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
146:										
Slickrock	B	---								
			Jan-Dec	---	---	---	---	None	---	None
147:										
Steiwer	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Chehulpum	D	---								
			Jan-Dec	---	---	---	---	None	---	None
148:										
Steiwer	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Chehulpum	D	---								
			Jan-Dec	---	---	---	---	None	---	None
149:										
Steiwer	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Chehulpum	D	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
150:										
Treharne	C	---								
			January	1.7-2.7	>6.0	---	---	None	---	None
			February	1.7-2.7	>6.0	---	---	None	---	None
			March	1.7-2.7	>6.0	---	---	None	---	None
			April	1.7-2.7	>6.0	---	---	None	---	None
			May	2.7-6.0	>6.0	---	---	None	---	None
			June	2.7-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	2.7-6.0	>6.0	---	---	None	---	None
			November	2.7-6.0	>6.0	---	---	None	---	None
			December	1.7-2.7	>6.0	---	---	None	---	None
Eilertsen	B	---								
			January	3.7-4.5	>6.0	---	---	None	---	None
			February	3.7-4.5	>6.0	---	---	None	---	None
			March	4.5-6.0	>6.0	---	---	None	---	None
			April	4.5-6.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	4.5-6.0	>6.0	---	---	None	---	None
			December	3.7-4.5	>6.0	---	---	None	---	None
Zyzzug	D	---								
			January	0.0-1.0	>6.0	---	---	None	---	Rare
			February	0.0-1.0	>6.0	---	---	None	---	Rare
			March	0.0-1.0	>6.0	---	---	None	---	Rare
			April	0.0-1.0	>6.0	---	---	None	---	Rare
			May	1.0-3.0	>6.0	---	---	None	---	None
			June	3.0-3.5	>6.0	---	---	None	---	None
			July	3.5-6.0	>6.0	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	1.0-3.0	>6.0	---	---	None	---	Rare
			December	0.0-1.0	>6.0	---	---	None	---	Rare

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
151:										
Valsetz	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Yellowstone	D	---								
			Jan-Dec	---	---	---	---	None	---	None
152:										
Valsetz	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Yellowstone	D	---								
			Jan-Dec	---	---	---	---	None	---	None
153:										
Valsetz	C	---								
			Jan-Dec	---	---	---	---	None	---	None
Yellowstone	D	---								
			Jan-Dec	---	---	---	---	None	---	None
154:										
Verboort	D	---								
			January	0.0-0.7	>6.0	---	---	None	Brief	Frequent
			February	0.0-0.7	>6.0	---	---	None	Brief	Frequent
			March	0.0-0.7	>6.0	---	---	None	Brief	Frequent
			April	0.0-0.7	>6.0	---	---	None	Brief	Frequent
			May	1.6-2.3	>6.0	---	---	None	---	None
			June	2.8-6.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0-1.6	1.3-2.2	---	---	None	---	None
			December	0.0-0.7	>6.0	---	---	None	Brief	Frequent

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
155:										
Waldo	D	---								
			January	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			February	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			March	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			April	0.0-0.2	>6.0	---	---	None	Brief	Occasional
			May	1.2-1.9	>6.0	---	---	None	---	None
			June	1.9-3.1	>6.0	---	---	None	---	None
			July	3.8-6.0	>6.0	---	---	None	---	None
			August	3.8-6.0	>6.0	---	---	None	---	None
			September	3.8-6.0	>6.0	---	---	None	---	None
			October	3.8-6.0	>6.0	---	---	None	---	None
			November	3.8-6.0	>6.0	---	---	None	Brief	Occasional
			December	0.0-0.2	>6.0	---	---	None	Brief	Occasional
156:										
Waldo, high precipitation	D	---								
			January	0.0-0.2	>6.0	0.0-0.5	Brief	Frequent	Brief	Occasional
			February	0.0-0.2	>6.0	0.0-0.5	Brief	Frequent	Brief	Occasional
			March	0.0-0.2	>6.0	0.0-0.5	Brief	Frequent	Brief	Occasional
			April	0.0-0.2	>6.0	0.0-0.5	Brief	Frequent	Brief	Occasional
			May	0.2-0.6	>6.0	---	---	None	---	None
			June	1.2-1.9	>6.0	---	---	None	---	None
			July	3.1-3.8	>6.0	---	---	None	---	None
			August	3.8-5.0	>6.0	---	---	None	---	None
			September	3.8-5.0	>6.0	---	---	None	---	None
			October	1.9-3.1	>6.0	---	---	None	---	None
			November	0.2-0.6	>6.0	---	---	None	---	None
			December	0.0-0.2	>6.0	---	---	None	Brief	Occasional
157:										
Wapato	D	---								
			January	0.0-0.8	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
			February	0.0-0.8	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
			March	0.0-0.8	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
			April	0.0-0.8	>6.0	---	---	None	Brief	Occasional
			May	1.8-2.7	>6.0	---	---	None	---	None
			June	2.7-6.0	>6.0	---	---	None	---	None
			July	2.7-6.0	>6.0	---	---	None	---	None
			August	2.7-6.0	>6.0	---	---	None	---	None
			September	2.7-6.0	>6.0	---	---	None	---	None
			October	2.7-6.0	>6.0	---	---	None	---	None
			November	2.7-6.0	>6.0	---	---	None	Brief	Occasional
			December	0.0-0.8	>6.0	---	---	None	Brief	Occasional

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
158:										
Wapato, high precipitation	D	---								
			January	0.0-0.8	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
			February	0.0-0.8	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
			March	0.0-0.8	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
			April	0.0-0.8	>6.0	---	---	None	Brief	Occasional
			May	0.0-0.8	>6.0	---	---	None	---	None
			June	1.8-2.7	>6.0	---	---	None	---	None
			July	2.7-6.0	>6.0	---	---	None	---	None
			August	2.7-6.0	>6.0	---	---	None	---	None
			September	2.7-6.0	>6.0	---	---	None	---	None
			October	2.7-6.0	>6.0	---	---	None	---	None
			November	1.8-2.7	>6.0	---	---	None	Brief	Occasional
			December	0.0-0.8	>6.0	---	---	None	Brief	Occasional
159:										
Water--------------------	---	---								
			Jan-Dec	---	---	---	---	None	---	---
160:										
Wellsdale-----------------	B	---								
			January	2.0-2.8	>6.0	---	---	None	---	None
			February	2.0-2.8	>6.0	---	---	None	---	None
			March	2.0-2.8	>6.0	---	---	None	---	None
			April	2.8-4.8	>6.0	---	---	None	---	None
			May	4.8-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	None
Willakenzie---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
161:										
Wellsdale----------------	B	---								
			January	2.0-2.8	>6.0	---	---	None	---	None
			February	2.0-2.8	>6.0	---	---	None	---	None
			March	2.0-2.8	>6.0	---	---	None	---	None
			April	2.8-4.8	>6.0	---	---	None	---	None
			May	4.8-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	None
Willakenzie--------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Dupee--------------------	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
162:										
Wellsdale, north slopes---	B	---								
			January	2.0-2.8	>6.0	---	---	None	---	None
			February	2.0-2.8	>6.0	---	---	None	---	None
			March	2.0-2.8	>6.0	---	---	None	---	None
			April	2.8-4.8	>6.0	---	---	None	---	None
			May	4.8-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	None
Willakenzie, north slopes	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Dupee, north slopes-------	C	---								
			January	0.8-1.4	>6.0	---	---	None	---	None
			February	0.8-1.4	>6.0	---	---	None	---	None
			March	0.8-1.4	>6.0	---	---	None	---	None
			April	0.8-1.4	>6.0	---	---	None	---	None
			May	3.5-4.3	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.8-1.4	>6.0	---	---	None	---	None
163:										
Willakenzie---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
164:										
Willakenzie---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None
165:										
Willakenzie---------------	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
166:										
Willakenzie	B	---								
			Jan-Dec	---	---	---	---	None	---	None
167:										
Willakenzie, south slopes	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Wellsdale, south slopes	B	---								
			January	2.0-2.8	>6.0	---	---	None	---	None
			February	2.0-2.8	>6.0	---	---	None	---	None
			March	2.0-2.8	>6.0	---	---	None	---	None
			April	2.8-4.8	>6.0	---	---	None	---	None
			May	4.8-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	None
168:										
Willakenzie	B	---								
			Jan-Dec	---	---	---	---	None	---	None
Wellsdale	B	---								
			January	2.0-2.8	>6.0	---	---	None	---	None
			February	2.0-2.8	>6.0	---	---	None	---	None
			March	2.0-2.8	>6.0	---	---	None	---	None
			April	2.8-4.8	>6.0	---	---	None	---	None
			May	4.8-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-2.8	>6.0	---	---	None	---	None
169:										
Willamette	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	*Ft*	*Ft*				
170:										
Willamette	B	---								
			Jan-Dec	---	---	---	---	None	---	None
171:										
Willamette	B	---								
			Jan-Dec	---	---	---	---	None	---	None
172:										
Witham	D	---								
			January	1.0-1.7	>6.0	---	---	None	---	None
			February	1.0-1.7	>6.0	---	---	None	---	None
			March	1.0-1.7	>6.0	---	---	None	---	None
			April	1.0-1.7	>6.0	---	---	None	---	None
			May	2.4-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.0-1.7	>6.0	---	---	None	---	None
173:										
Witham	D	---								
			January	1.0-1.7	>6.0	---	---	None	---	None
			February	1.0-1.7	>6.0	---	---	None	---	None
			March	1.0-1.7	>6.0	---	---	None	---	None
			April	1.0-1.7	>6.0	---	---	None	---	None
			May	2.4-6.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.0-1.7	>6.0	---	---	None	---	None
174:										
Witzel	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Ritner	B	---								
			Jan-Dec	---	---	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
175:										
Witzel	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Ritner	B	---								
			Jan-Dec	---	---	---	---	None	---	None
176:										
Witzel	D	---								
			Jan-Dec	---	---	---	---	None	---	None
Ritner	B	---								
			Jan-Dec	---	---	---	---	None	---	None
177:										
Woodburn	B	---								
			January	2.1-2.7	>6.0	---	---	None	---	None
			February	2.1-2.7	>6.0	---	---	None	---	None
			March	2.1-2.7	>6.0	---	---	None	---	None
			April	2.7-3.2	>6.0	---	---	None	---	None
			May	4.5-5.7	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.1-2.7	>6.0	---	---	None	---	None
178:										
Woodburn	B	---								
			January	2.1-2.7	>6.0	---	---	None	---	None
			February	2.1-2.7	>6.0	---	---	None	---	None
			March	2.1-2.7	>6.0	---	---	None	---	None
			April	2.7-3.2	>6.0	---	---	None	---	None
			May	4.5-5.7	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.1-2.7	>6.0	---	---	None	---	None

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
179:										
Woodburn	B	---								
			January	2.1-2.7	>6.0	---	---	None	---	None
			February	2.1-2.7	>6.0	---	---	None	---	None
			March	2.1-2.7	>6.0	---	---	None	---	None
			April	2.7-3.2	>6.0	---	---	None	---	None
			May	4.5-5.7	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.1-2.7	>6.0	---	---	None	---	None
180:										
Woodburn	B	---								
			January	2.1-2.7	>6.0	---	---	None	---	None
			February	2.1-2.7	>6.0	---	---	None	---	None
			March	2.1-2.7	>6.0	---	---	None	---	None
			April	2.7-3.2	>6.0	---	---	None	---	None
			May	4.5-5.7	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.1-2.7	>6.0	---	---	None	---	None

Table 26.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
1:									
Abiqua	---	---	---	---	0	---	None	High	Moderate
2:									
Abiqua	---	---	---	---	0	---	None	High	Moderate
3:									
Abiqua, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
4:									
Abiqua, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
5:									
Abiqua, rarely flooded	---	---	---	---	0	---	None	High	Moderate
6:									
Alsea	---	---	---	---	0	---	Low	Moderate	Moderate
7:									
Alsea, rarely flooded	---	---	---	---	0	---	Low	Moderate	Moderate
8:									
Amity	---	---	---	---	0	---	None	Moderate	Moderate
9:									
Apt	---	---	---	---	0	---	Low	High	High
McDuff	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High
10:									
Apt	---	---	---	---	0	---	Low	High	High
McDuff	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High
11:									
Aquents	---	---	---	---	0	---	None	High	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
12:									
Awbrig-----------------	Abrupt textural change	5-12	20-36	Noncemented	0	---	None	Moderate	Moderate
13:									
Bashaw, nonflooded-----	---	---	---	---	0	---	None	High	Moderate
14:									
Bashaw, flooded--------	---	---	---	---	0	---	None	High	Moderate
15:									
Bashaw, nonflooded-----	---	---	---	---	0	---	None	High	Moderate
16:									
Bashaw, nonflooded-----	---	---	---	---	0	---	None	High	Moderate
17:									
Bellpine---------------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	High	High
Jory, sedimentary bedrock---------------	---	---	---	---	0	---	None	High	High
18:									
Bellpine---------------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	High	High
Jory, sedimentary bedrock---------------	---	---	---	---	0	---	None	High	High
19:									
Bellpine---------------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	High	High
Jory, sedimentary bedrock---------------	---	---	---	---	0	---	None	High	High
20:									
Bellpine---------------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	High	High
Jory, sedimentary bedrock---------------	---	---	---	---	0	---	None	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
21:									
Blachly	---	---	---	---	0	---	Low	High	High
Kilowan	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
22:									
Blachly	---	---	---	---	0	---	Low	High	High
Kilowan	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
23:									
Bohannon	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
Preacher	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Low	High	High
24:									
Bohannon	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
Preacher	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Low	High	High
25:									
Briedwell	---	---	---	---	0	---	None	Moderate	Moderate
26:									
Briedwell	---	---	---	---	0	---	None	Moderate	Moderate
27:									
Burntwoods	Paralithic bedrock	61-89	---	Weakly cemented	0	---	Moderate	High	High
Oldblue	Paralithic bedrock	60-89	---	Weakly cemented	0	---	Moderate	High	High
28:									
Camas	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	None	Moderate	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
29:									
Camas, rarely flooded	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	None	Moderate	Moderate
30:									
Caterl	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	High	High
Laderly	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Romanose	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
31:									
Caterl	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	High	High
Laderly	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Romanose	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
32:									
Caterl	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	High	High
Murtip	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate	High	High
Giveout	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Moderate	High	High
33:									
Caterl	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	High	High
Murtip	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate	High	High
Laderly	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
34:									
Chapman	---	---	---	---	0	---	None	Moderate	Moderate
35:									
Chapman, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
36:									
Chehalem	---	---	---	---	0	---	None	High	Moderate
37:									
Chehalem	---	---	---	---	0	---	None	High	Moderate
38:									
Chehalis	---	---	---	---	0	---	None	Moderate	Moderate
39:									
Chehalis, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
40:									
Chehalis	---	---	---	---	0	---	None	Moderate	Moderate
41:									
Chintimini	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	50-70	---	Strongly cemented					
Blodgett	Paralithic bedrock	12-17	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	13-20	---	Very strongly cemented					
42:									
Chintimini	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	50-70	---	Strongly cemented					
Blodgett	Paralithic bedrock	12-17	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	13-20	---	Very strongly cemented					
Fiverivers	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Moderate	High	High
43:									
Chintimini	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	50-70	---	Strongly cemented					
Grassmountain	Paralithic bedrock	60-80	---	Weakly cemented	0	---	Moderate	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
44:									
Chismore	---	---	---	---	0	---	Low	High	High
Pyburn	---	---	---	---	0	---	Low	High	High
45:									
Chismore	---	---	---	---	0	---	Low	High	High
Pyburn	---	---	---	---	0	---	Low	High	High
46:									
Cloquato	---	---	---	---	0	---	None	Low	Moderate
47:									
Cloquato, high precipitation	---	---	---	---	0	---	Low	Low	Low
48:									
Coburg, occasionally flooded	---	---	---	---	0	---	None	High	Moderate
Coburg, rarely flooded	---	---	---	---	0	---	None	High	Moderate
49:									
Coburg	---	---	---	---	0	---	None	High	Moderate
50:									
Coburg, rarely flooded	---	---	---	---	0	---	None	High	Moderate
51:									
Concord	---	---	---	---	0	---	None	Moderate	Moderate
52:									
Conser	---	---	---	---	0	---	None	High	Moderate
53:									
Dayton	Abrupt textural change	12-24	5-40	Noncemented	0	---	None	Moderate	Moderate
54:									
Dayton, clay substratum	Abrupt textural change	12-24	36-48	Noncemented	0	---	None	Moderate	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
55:									
Digger	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
	Lithic bedrock	30-50	---	Very strongly cemented					
Bohannon	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
56:									
Digger	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
	Lithic bedrock	30-50	---	Very strongly cemented					
Remote	---	---	---	---	0	---	Low	High	High
Umpcoos	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Low	High	High
57:									
Digger	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
	Lithic bedrock	30-50	---	Very strongly cemented					
Umpcoos	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Low	High	High
Remote	---	---	---	---	0	---	Low	High	High
58:									
Dixonville	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	Moderate
Gellatly	Paralithic bedrock	60-98	---	Moderately cemented	0	---	None	High	Moderate
59:									
Dixonville	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	Moderate
Gellatly	Paralithic bedrock	60-98	---	Moderately cemented	0	---	None	High	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
60:									
Dixonville	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	Moderate
Gellatly	Paralithic bedrock	60-98	---	Moderately cemented	0	---	None	High	Moderate
Witham	---	---	---	---	0	---	None	High	Moderate
61:									
Dupee	---	---	---	---	0	---	None	High	High
62:									
Dupee	---	---	---	---	0	---	None	High	High
63:									
Elsie	---	---	---	---	0	---	Low	High	High
64:									
Elsie	---	---	---	---	0	---	Low	High	High
65:									
Fiverivers	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Moderate	High	High
Grassmountain	Paralithic bedrock	60-80	---	Weakly cemented	0	---	Moderate	High	High
Chintimini	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	50-70	---	Strongly cemented					
66:									
Fluvents	Strongly contrasting textural stratification	20-80	---	Noncemented	0	---	None	Moderate	Moderate
Fluvaquents	---	---	---	---	0	---	None	High	Moderate
67:									
Fluvents, high precipitation	Strongly contrasting textural stratification	20-80	---	Noncemented	0	---	Low	High	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
67:									
Fluvaquents, high precipitation	---	---	---	---	0	---	Low	High	Moderate
68:									
Formader	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High
Hemcross	---	---	---	---	0	---	Low	High	High
69:									
Formader	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High
Hemcross	---	---	---	---	0	---	Low	High	High
70:									
Formader	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High
Klistan	Lithic bedrock	40-60	---	Very strongly cemented	0	---	Low	High	High
Hemcross	---	---	---	---	0	---	Low	High	High
71:									
Gelderman	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	High
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
72:									
Goodin	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	High
Dupee	---	---	---	---	0	---	None	High	High
Chehulpum	Paralithic bedrock	10-20	---	Moderately cemented	0	---	None	Moderate	Moderate
73:									
Goodin	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	High
Chehulpum	Paralithic bedrock	10-20	---	Moderately cemented	0	---	None	Moderate	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
73:									
Dupee	---	---	---	---	0	---	None	High	High
74:									
Grassmountain	Paralithic bedrock	60-80	---	Weakly cemented	0	---	Moderate	High	High
Fiverivers	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Moderate	High	High
Chintimini	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Moderate	High	High
	Lithic bedrock	50-70	---	Strongly cemented					
75:									
Harslow	Lithic bedrock	20-40	---	Very strongly cemented	0	---	Low	High	High
Kilchis	Lithic bedrock	12-20	---	Indurated	0	---	Low	High	High
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
76:									
Harslow	Lithic bedrock	20-40	---	Very strongly cemented	0	---	Low	High	High
Klistan	Lithic bedrock	40-60	---	Very strongly cemented	0	---	Low	High	High
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
77:									
Hazelair	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate
78:									
Hazelair	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate
79:									
Hazelair	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
80:									
Hazelair	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate
81:									
Helmick	---	---	---	---	0	---	None	High	High
82:									
Helvetia	---	---	---	---	0	---	None	Moderate	Moderate
83:									
Hemcross	---	---	---	---	0	---	Low	High	High
Klistan	Lithic bedrock	40-60	---	Very strongly cemented	0	---	Low	High	High
84:									
Hemcross	---	---	---	---	0	---	Low	High	High
Klistan	Lithic bedrock	40-60	---	Very strongly cemented	0	---	Low	High	High
85:									
Holcomb	Abrupt textural change	15-30	20-45	Noncemented	0	---	None	Moderate	Moderate
86:									
Honeygrove	Paralithic bedrock	60-80	---	Moderately cemented	0	---	Low	High	High
Peavine, sedimentary bedrock	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High
87:									
Honeygrove	Paralithic bedrock	60-80	---	Moderately cemented	0	---	Low	High	High
Peavine, sedimentary bedrock	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Low	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
88:									
Honeygrove, basalt bedrock	---	---	---	---	0	---	Low	High	High
Peavine, basalt bedrock	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
89:									
Honeygrove, basalt bedrock	---	---	---	---	0	---	Low	High	High
Peavine, basalt bedrock	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
90:									
Honeygrove, basalt bedrock	---	---	---	---	0	---	Low	High	High
Shivigny	Paralithic bedrock	60-80	---	Moderately cemented	0	---	Low	High	High
91:									
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
92:									
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
93:									
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
94:									
Jory, sedimentary bedrock	---	---	---	---	0	---	None	High	High
95:									
Jory, sedimentary bedrock	---	---	---	---	0	---	None	High	High
96:									
Jory, sedimentary bedrock	---	---	---	---	0	---	None	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
97:									
Jory, sedimentary bedrock	---	---	---	---	0	---	None	High	High
Dupee	---	---	---	---	0	---	None	High	High
98:									
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
Gelderman	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	High	High
99:									
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
Nekia	Lithic bedrock	20-40	---	Indurated	0	---	None	High	High
100:									
Jory, basalt bedrock	---	---	---	---	0	---	None	High	High
Nekia	Lithic bedrock	20-40	---	Indurated	0	---	None	High	High
101:									
Kirkendall	---	---	---	---	0	---	Low	High	High
Nekoma	---	---	---	---	0	---	Low	High	High
Quosatana	---	---	---	---	0	---	Low	Moderate	Moderate
102:									
Klistan	Lithic bedrock	40-60	---	Very strongly cemented	0	---	Low	High	High
Harslow	Lithic bedrock	20-40	---	Very strongly cemented	0	---	Low	High	High
103:									
Klistan	Lithic bedrock	40-60	---	Very strongly cemented	0	---	Low	High	High
Harslow	Lithic bedrock	20-40	---	Very strongly cemented	0	---	Low	High	High
Hemcross	---	---	---	---	0	---	Low	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
104:									
Laderly	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Murtip	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate	High	High
Giveout	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Moderate	High	High
105:									
Linslaw	---	---	---	---	0	---	None	High	High
106:									
Linslaw	---	---	---	---	0	---	None	High	High
107:									
Lurnick	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	High	High
	Lithic bedrock	30-50	---	Indurated					
Luckiamute	Lithic bedrock	14-20	---	Very strongly cemented	0	---	Moderate	High	High
108:									
Lurnick	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	High	High
	Lithic bedrock	30-50	---	Indurated					
Luckiamute	Lithic bedrock	14-20	---	Very strongly cemented	0	---	Moderate	High	High
Maryspeak	---	---	---	---	0	---	Moderate	High	High
109:									
MacDunn	Paralithic bedrock	40-60	---	Moderately cemented	0	---	None	High	Moderate
Price	---	---	---	---	0	---	None	High	Moderate
Ritner	Lithic bedrock	20-40	---	Indurated	0	---	None	High	Moderate
110:									
Malabon	---	---	---	---	0	---	None	High	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
111:									
Malabon, rarely flooded	---	---	---	---	0	---	None	High	Moderate
112:									
Maryspeak	---	---	---	---	0	---	Moderate	High	High
113:									
McAlpin	---	---	---	---	0	---	None	High	Moderate
114:									
McAlpin	---	---	---	---	0	---	None	High	Moderate
115:									
McAlpin, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
116:									
McAlpin, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
117:									
McAlpin, rarely flooded	---	---	---	---	0	---	None	High	Moderate
118:									
McBee	---	---	---	---	0	---	None	Moderate	Moderate
119:									
McBee, nonflooded	---	---	---	---	0	---	None	Moderate	Moderate
120:									
Meda	---	---	---	---	0	---	Low	High	High
Treharne	---	---	---	---	0	---	Low	High	High
Wasson	---	---	---	---	0	---	Low	High	High
121:									
Mulkey	Lithic bedrock	20-40	---	Indurated	0	---	High	High	High
122:									
Mulkey	Lithic bedrock	20-40	---	Indurated	0	---	High	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
123:									
Murtip	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate	High	High
Giveout	Paralithic bedrock	20-40	---	Weakly cemented	0	---	Moderate	High	High
Laderly	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
124:									
Nekoma	---	---	---	---	0	---	Low	High	High
Fluvaquents	---	---	---	---	0	---	Low	Moderate	Moderate
125:									
Newberg	---	---	---	---	0	---	None	Moderate	Moderate
126:									
Newberg, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
127:									
Newberg	---	---	---	---	0	---	None	Moderate	Moderate
128:									
Oldblue	Paralithic bedrock	60-89	---	Weakly cemented	0	---	Moderate	High	High
Burntwoods	Paralithic bedrock	61-89	---	Weakly cemented	0	---	Moderate	High	High
129:									
Panther	Paralithic bedrock	40-60	---	Moderately cemented	0	---	None	High	High
130:									
Pengra	Abrupt textural change	14-30	30-46	Noncemented	0	---	None	High	Moderate
131:									
Philomath	Paralithic bedrock	12-20	---	Moderately cemented	0	---	None	High	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
132:									
Pilchuck	Strongly contrasting textural stratification	5-10	---	Noncemented	0	---	None	Low	Moderate
133:									
Pits	---	---	---	---	0	---	---	---	---
134:									
Preacher	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Low	High	High
Blachly	---	---	---	---	0	---	Low	High	High
Bohannon	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
135:									
Preacher	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Low	High	High
Bohannon	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
136:									
Preacher	Paralithic bedrock	40-60	---	Weakly cemented	0	---	Low	High	High
Bohannon	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Low	High	High
Slickrock	---	---	---	---	0	---	Low	High	High
137:									
Price	---	---	---	---	0	---	None	High	Moderate
MacDunn	Paralithic bedrock	40-60	---	Moderately cemented	0	---	None	High	Moderate
Ritner	Lithic bedrock	20-40	---	Indurated	0	---	None	High	Moderate
138:									
Riverwash	---	---	---	---	0	---	None	---	---

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
139:									
Salem------------------	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	None	Moderate	Moderate
140:									
Santiam----------------	---	---	---	---	0	---	None	High	Moderate
141:									
Santiam----------------	---	---	---	---	0	---	None	High	Moderate
142:									
Sevencedars------------	---	---	---	---	0	---	Moderate	High	High
Newanna----------------	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
143:									
Sevencedars------------	---	---	---	---	0	---	Moderate	High	High
Newanna----------------	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Woodspoint-------------	Lithic bedrock	40-60	---	Indurated	0	---	High	High	High
144:									
Sevencedars------------	---	---	---	---	0	---	Moderate	High	High
Newanna----------------	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Woodspoint-------------	Lithic bedrock	40-60	---	Indurated	0	---	High	High	High
145:									
Shivigny---------------	Paralithic bedrock	60-80	---	Moderately cemented	0	---	Low	High	High
Honeygrove, basalt bedrock---------------	---	---	---	---	0	---	Low	High	High
146:									
Slickrock--------------	---	---	---	---	0	---	Low	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
147:									
Steiwer----------------	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate
Chehulpum--------------	Paralithic bedrock	10-20	---	Moderately cemented	0	---	None	Moderate	Moderate
148:									
Steiwer----------------	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate
Chehulpum--------------	Paralithic bedrock	10-20	---	Moderately cemented	0	---	None	Moderate	Moderate
149:									
Steiwer----------------	Paralithic bedrock	20-40	---	Moderately cemented	0	---	None	Moderate	Moderate
Chehulpum--------------	Paralithic bedrock	10-20	---	Moderately cemented	0	---	None	Moderate	Moderate
150:									
Treharne---------------	---	---	---	---	0	---	Low	High	High
Eilertsen--------------	---	---	---	---	0	---	Low	High	High
Zyzzug-----------------	---	---	---	---	0	---	Low	High	High
151:									
Valsetz----------------	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Yellowstone------------	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
152:									
Valsetz----------------	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Yellowstone------------	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
153:									
Valsetz----------------	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	High
Yellowstone------------	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
154:									
Verboort	Abrupt textural change	16-26	14-45	Noncemented	0	---	None	High	Moderate
155:									
Waldo	---	---	---	---	0	---	None	High	Moderate
156:									
Waldo, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
157:									
Wapato	---	---	---	---	0	---	None	High	Moderate
158:									
Wapato, high precipitation	---	---	---	---	0	---	Low	Moderate	Moderate
159:									
Water	---	---	---	---	---	---	---	---	---
160:									
Wellsdale	---	---	---	---	0	---	None	Moderate	Moderate
Willakenzie	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
161:									
Wellsdale	---	---	---	---	0	---	None	Moderate	Moderate
Willakenzie	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
Dupee	---	---	---	---	0	---	None	High	High
162:									
Wellsdale, north slopes	---	---	---	---	0	---	None	Moderate	Moderate
Willakenzie, north slopes	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
Dupee, north slopes	---	---	---	---	0	---	None	High	High

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*			
163:									
Willakenzie-----------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
164:									
Willakenzie-----------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
165:									
Willakenzie-----------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
166:									
Willakenzie-----------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
167:									
Willakenzie, south slopes---------------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
Wellsdale, south slopes	---	---	---	---	0	---	None	Moderate	Moderate
168:									
Willakenzie-----------	Paralithic bedrock	20-40	---	Weakly cemented	0	---	None	Moderate	Moderate
Wellsdale-------------	---	---	---	---	0	---	None	Moderate	Moderate
169:									
Willamette------------	---	---	---	---	0	---	None	Moderate	Moderate
170:									
Willamette------------	---	---	---	---	0	---	None	Moderate	Moderate
171:									
Willamette------------	---	---	---	---	0	---	None	Moderate	Moderate
172:									
Witham----------------	---	---	---	---	0	---	None	High	Moderate
173:									
Witham----------------	---	---	---	---	0	---	None	High	Moderate

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
174:									
Witzel-----------------	Lithic bedrock	12-20	---	Indurated	0	---	None	Moderate	Moderate
Ritner-----------------	Lithic bedrock	20-40	---	Indurated	0	---	None	High	Moderate
175:									
Witzel-----------------	Lithic bedrock	12-20	---	Indurated	0	---	None	Moderate	Moderate
Ritner-----------------	Lithic bedrock	20-40	---	Indurated	0	---	None	High	Moderate
176:									
Witzel-----------------	Lithic bedrock	12-20	---	Indurated	0	---	None	Moderate	Moderate
Ritner-----------------	Lithic bedrock	20-40	---	Indurated	0	---	None	High	Moderate
177:									
Woodburn---------------	---	---	---	---	0	---	None	Moderate	Moderate
178:									
Woodburn---------------	---	---	---	---	0	---	None	Moderate	Moderate
179:									
Woodburn---------------	---	---	---	---	0	---	None	Moderate	Moderate
180:									
Woodburn---------------	---	---	---	---	0	---	None	Moderate	Moderate

Table 27.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Abiqua	Fine, mixed, superactive, mesic Cumulic Ultic Haploxerolls
Alsea	Fine-loamy, mixed, superactive, mesic Cumulic Ultic Haploxerolls
Amity	Fine-silty, mixed, superactive, mesic Argiaquic Xeric Argialbolls
Apt	Fine, isotic, mesic Typic Haplohumults
Aquents	Mesic Aquents
Awbrig	Fine, smectitic, mesic Vertic Albaqualfs
Bashaw	Very-fine, smectitic, mesic Xeric Endoaquerts
Bellpine	Fine, mixed, active, mesic Xeric Haplohumults
Blachly	Fine, isotic, mesic Typic Dystrudepts
Blodgett	Loamy-skeletal, isotic, frigid, shallow Typic Dystrudepts
Bohannon	Fine-loamy, isotic, mesic Andic Dystrudepts
Briedwell	Loamy-skeletal, mixed, superactive, mesic Ultic Haploxerolls
Burntwoods	Medial-skeletal over loamy-skeletal, mixed over isotic, frigid Typic Fulvudands
Camas	Sandy-skeletal, mixed, mesic Fluventic Haploxerolls
Caterl	Medial-skeletal, ferrihydritic, frigid Alic Hapludands
Chapman	Fine-loamy, mixed, superactive, mesic Cumulic Ultic Haploxerolls
Chehalem	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Chehalis	Fine-silty, mixed, superactive, mesic Cumulic Ultic Haploxerolls
Chehulpum	Loamy, mixed, superactive, mesic, shallow Ultic Haploxerolls
Chintimini	Loamy-skeletal, isotic, frigid Andic Dystrudepts
Chismore	Fine, isotic, mesic Aquic Palehumults
Cloquato	Coarse-silty, mixed, superactive, mesic Cumulic Ultic Haploxerolls
Coburg	Fine, mixed, superactive, mesic Oxyaquic Argixerolls
Concord	Fine, smectitic, mesic Typic Endoaqualfs
Conser	Fine, mixed, superactive, mesic Vertic Argiaquolls
Dayton	Fine, smectitic, mesic Vertic Albaqualfs
Digger	Loamy-skeletal, isotic, mesic Dystric Eutrudepts
Dixonville	Fine, mixed, superactive, mesic Pachic Ultic Argixerolls
Dupee	Fine, mixed, superactive, mesic Aquultic Haploxeralfs
Eilertsen	Fine-silty, isotic, mesic Ultic Hapludalfs
Elsie	Fine-silty, isotic, mesic Typic Haplohumults
Fiverivers	Fine-loamy, isotic, frigid Andic Dystrudepts
Fluvaquents	Mesic Fluvaquents
Fluvents	Mesic Fluvents
Formader	Medial over loamy, ferrihydritic over isotic, mesic Alic Hapludands
Gelderman	Fine, mixed, active, mesic Xeric Haplohumults
Gellatly	Fine, mixed, superactive, mesic Pachic Argixerolls
Giveout	Medial, ferrihydritic, frigid Alic Hapludands
Goodin	Fine, mixed, superactive, mesic Ultic Haploxeralfs
Grassmountain	Fine-loamy, isotic, frigid Andic Dystrudepts
Harslow	Medial-skeletal, ferrihydritic, mesic Alic Hapludands
Hazelair	Very-fine, smectitic, mesic Vertic Haploxerolls
Helmick	Very-fine, mixed, superactive, mesic Vertic Haploxerepts
Helvetia	Fine, mixed, superactive, mesic Ultic Argixerolls
Hemcross	Medial, ferrihydritic, mesic Alic Hapludands
Holcomb	Fine, smectitic, mesic Typic Argialbolls
Honeygrove	Fine, mixed, active, mesic Typic Palehumults
Jory	Fine, mixed, active, mesic Xeric Palehumults
Kilchis	Loamy-skeletal, isotic, mesic Humic Lithic Dystrudepts
Kilowan	Fine, isotic, mesic Typic Dystrudepts
Kirkendall	Fine-silty, mixed, superactive, mesic Oxyaquic Dystrudepts
Klistan	Medial-skeletal, ferrihydritic, mesic Alic Hapludands
Laderly	Medial-skeletal, ferrihydritic, frigid Alic Hapludands
Linslaw	Fine, mixed, superactive, mesic Aquultic Haploxeralfs
Luckiamute	Loamy-skeletal, isotic Lithic Dystrocryepts
*Lurnick	Loamy-skeletal, isotic Andic Dystrocryepts
MacDunn	Clayey-skeletal, mixed, superactive, mesic Typic Haploxerepts
Malabon	Fine, mixed, superactive, mesic Pachic Ultic Argixerolls
Maryspeak	Sandy-skeletal, isotic Andic Dystrocryepts

Table 27.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
McAlpin	Fine, mixed, superactive, mesic Aquic Cumulic Haploxerolls
McBee	Fine-silty, mixed, superactive, mesic Aquic Cumulic Haploxerolls
McDuff	Fine, isotic, mesic Typic Haplohumults
Meda	Fine-loamy, isotic, mesic Humic Dystrudepts
Mulkey	Medial, ferrihydritic Pachic Fulvicryands
Murtip	Medial, ferrihydritic, frigid Alic Hapludands
Nekia	Fine, mixed, active, mesic Xeric Haplohumults
Nekoma	Coarse-loamy, mixed, superactive, mesic Fluventic Humic Dystrudepts
Newanna	Medial-skeletal, ferrihydritic Typic Fulvicryands
Newberg	Coarse-loamy, mixed, superactive, mesic Fluventic Haploxerolls
Oldblue	Fine-loamy, isotic, frigid Andic Dystrudepts
Panther	Very-fine, smectitic, mesic Vertic Epiaquolls
Peavine	Fine, mixed, active, mesic Typic Haplohumults
Pengra	Fine-silty over clayey, mixed over smectitic, superactive, mesic Vertic Epiaquolls
Philomath	Clayey, smectitic, mesic, shallow Vertic Haploxerolls
Pilchuck	Mixed, mesic Dystric Xeropsamments
Preacher	Fine-loamy, isotic, mesic Andic Dystrudepts
Price	Fine, mixed, superactive, mesic Typic Haploxerepts
Pyburn	Fine, isotic, mesic Typic Umbraquults
Quosatana	Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Humaquepts
*Remote	Loamy-skeletal, isotic, mesic Typic Eutrudepts
Ritner	Clayey-skeletal, mixed, superactive, mesic Typic Haploxerepts
Romanose	Medial-skeletal, ferrihydritic, frigid Lithic Hapludands
Salem	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Pachic Ultic Argixerolls
Santiam	Fine, mixed, superactive, mesic Aquultic Haploxeralfs
Sevencedars	Medial-skeletal, ferrihydritic Typic Fulvicryands
Shivigny	Clayey-skeletal, mixed, active, mesic Typic Palehumults
Slickrock	Medial over loamy, ferrihydritic over isotic, mesic Alic Hapludands
Steiwer	Fine-loamy, mixed, superactive, mesic Ultic Haploxerolls
Treharne	Fine-silty, isotic, mesic Aquultic Hapludalfs
Umpcoos	Loamy-skeletal, isotic, mesic Lithic Eutrudepts
Valsetz	Medial-skeletal, ferrihydritic Alic Haplocryands
Verboort	Fine, mixed, superactive, mesic Xerertic Argialbolls
Waldo	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Wapato	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Wasson	Coarse-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Humaquepts
Wellsdale	Fine-loamy, mixed, active, mesic Aquultic Haploxeralfs
Willakenzie	Fine-loamy, mixed, active, mesic Ultic Haploxeralfs
Willamette	Fine-silty, mixed, superactive, mesic Pachic Ultic Argixerolls
Witham	Fine, smectitic, mesic Vertic Haploxerolls
Witzel	Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Haploxerolls
Woodburn	Fine-silty, mixed, superactive, mesic Aquultic Argixerolls
Woodspoint	Medial, ferrihydritic Typic Fulvicryands
Yellowstone	Medial-skeletal, ferrihydritic Lithic Haplocryands
Zyzzug	Fine-silty, isotic, acid, mesic Typic Humaquepts

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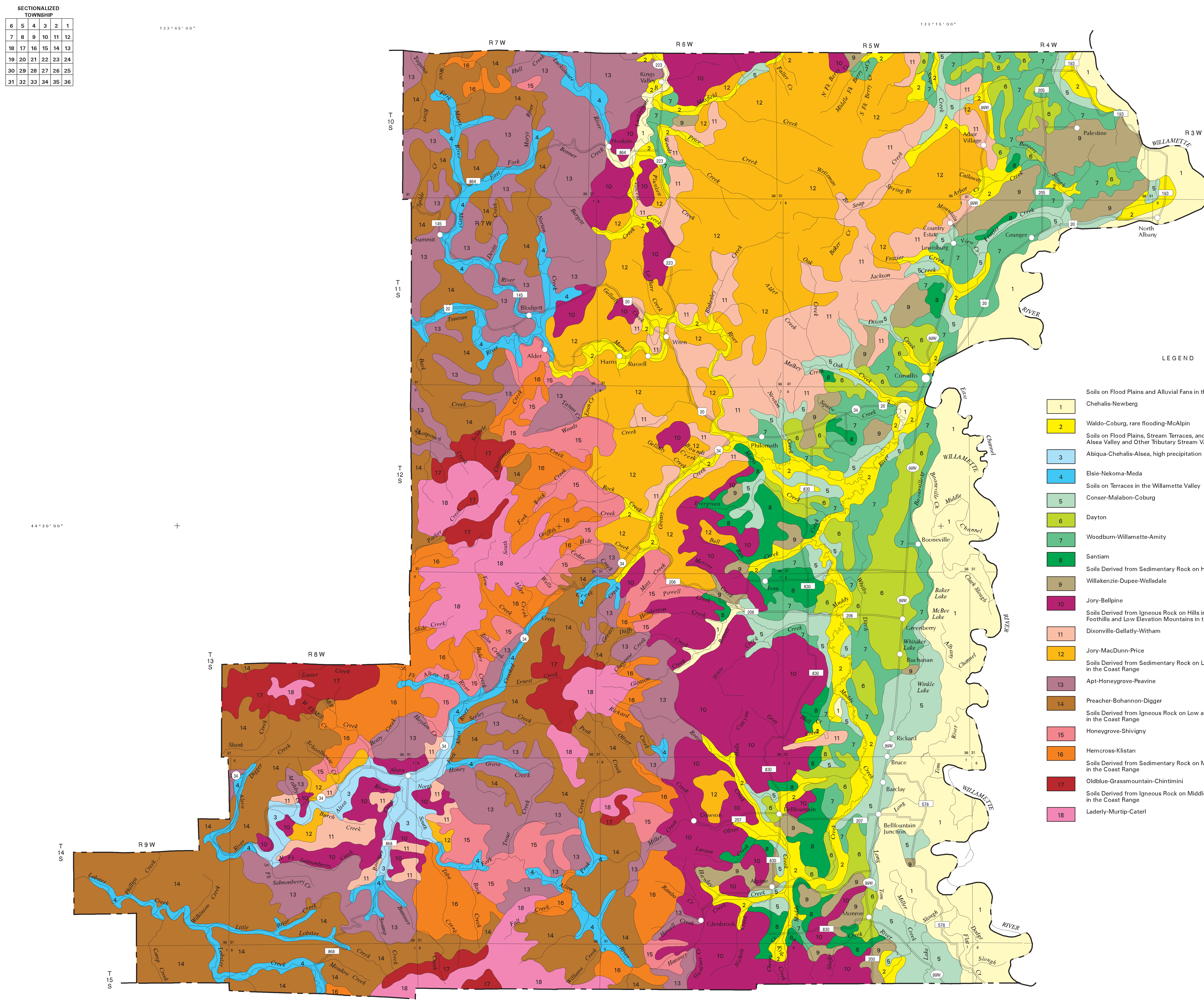


LEGEND

Soils on Flood Plains and Alluvial Fans in the Willamette Valley

1 Chehalis-Newberg

2 Waldo-Coburg, rare flooding-McAlpin

Soils on Flood Plains, Stream Terraces, and Alluvial Fans in the Alsea Valley and Other Tributary Stream Valleys in the Coast Range Mountains

3 Abiqua-Chehalis-Alsea, high precipitation

4 Elsie-Nekoma-Meda

Soils on Terraces in the Willamette Valley

5 Conser-Malabon-Coburg

6 Dayton

7 Woodburn-Willamette-Amity

8 Santiam

Soils Derived from Sedimentary Rock on Hills in the Willamette Valley

9 Willakenzie-Dupee-Wellsdale

10 Jory-Bellpine

Soils Derived from Igneous Rock on Hills in the Willamette Valley and on Foothills and Low Elevation Mountains in the Coast Range

11 Dixonville-Gellatly-Witham

12 Jory-MacDunn-Price

Soils Derived from Sedimentary Rock on Low and Middle Elevation Mountains in the Coast Range

13 Apt-Honeygrove-Peavine

14 Preacher-Bohannon-Digger

Soils Derived from Igneous Rock on Low and Middle Elevation Mountains in the Coast Range

15 Honeygrove-Shivigny

16 Hemcross-Klistan

Soils Derived from Sedimentary Rock on Middle and High Elevation Mountains in the Coast Range

17 Oldblue-Grassmountain-Chintimini

Soils Derived from Igneous Rock on Middle and High Elevation Mountains in the Coast Range

18 Laderly-Murtip-Caterl

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

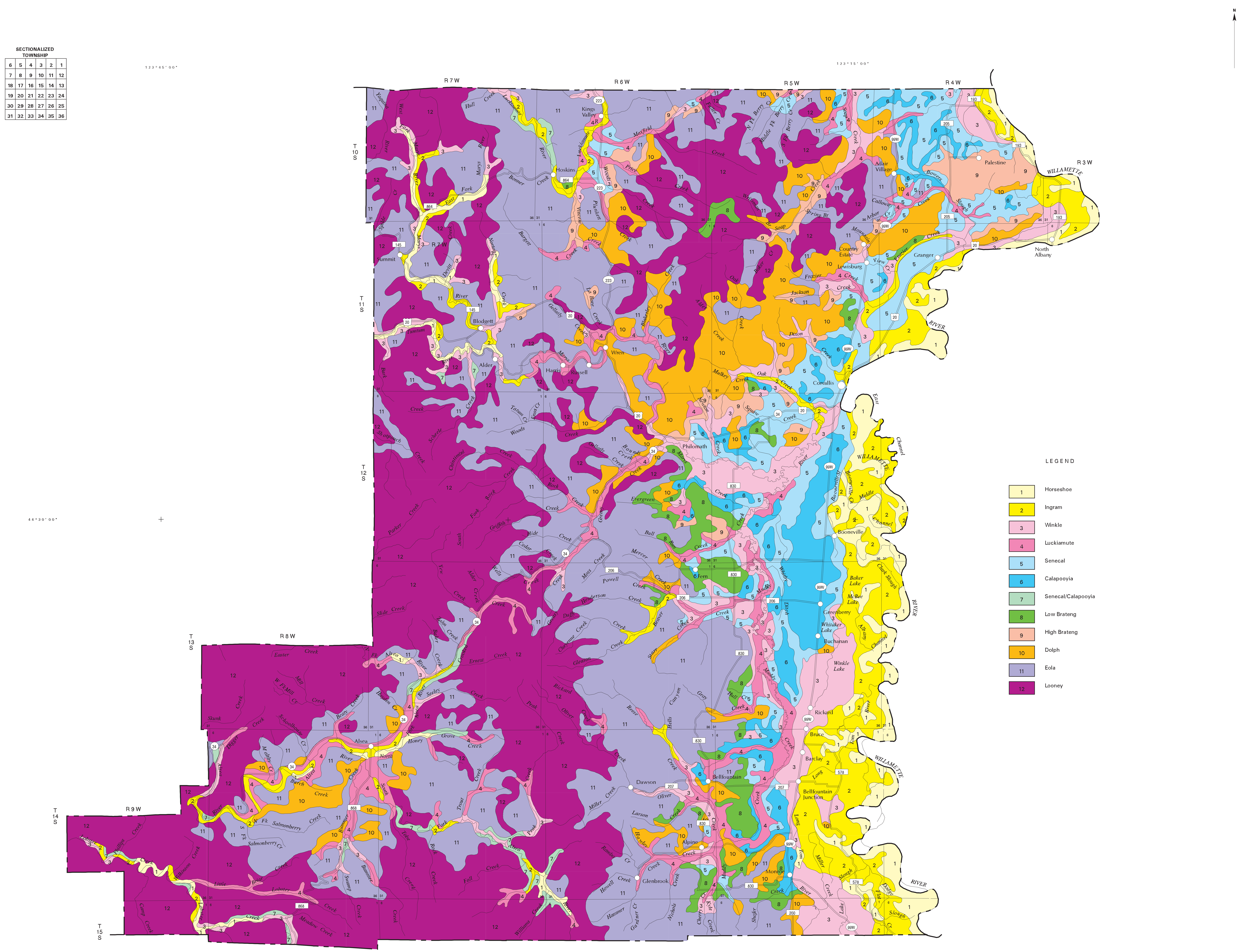
GENERAL SOIL MAP
BENTON COUNTY, OREGON

MILES

KILOMETERS

SCALE = 1:115000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



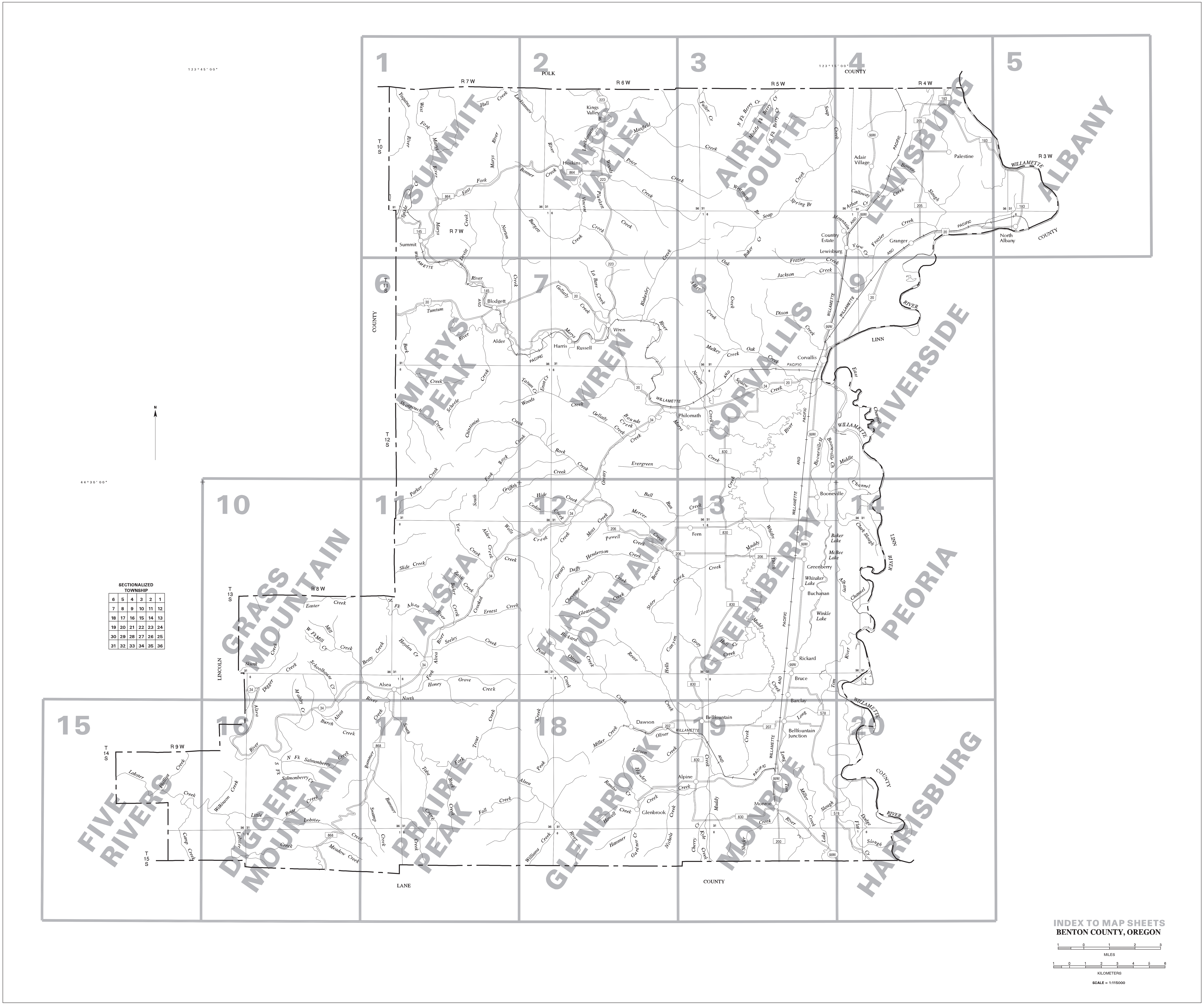
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

GEOMORPHIC SURFACES
BENTON COUNTY, OREGON

MILES

KILOMETERS

SCALE = 1:115000



INDEX TO MAP SHEETS
BENTON COUNTY, OREGON

SOIL LEGEND

SYMBOL	NAME
1	Abiqua silty clay loam, 0 to 3 percent slopes
2	Abiqua silty clay loam, 3 to 5 percent slopes
3	Abiqua silty clay loam, high precipitation, 0 to 3 percent slopes
4	Abiqua silty clay loam, high precipitation, 3 to 5 percent slopes
5	Abiqua silty clay loam, rarely flooded, 0 to 3 percent slopes
6	Alsea loam, 0 to 5 percent slopes
7	Alsea loam, rarely flooded, 0 to 3 percent slopes
8	Amity silt loam, 0 to 3 percent slopes
9	Apt-McDuff complex, 5 to 30 percent slopes
10	Apt-McDuff complex, 30 to 50 percent slopes
11	Aquents, 0 to 3 percent slopes
12	Awbrig silty clay loam, 0 to 2 percent slopes
13	Bashaw clay, 3 to 12 percent slopes
14	Bashaw clay, flooded, 0 to 3 percent slopes
15	Bashaw clay, nonflooded, 0 to 3 percent slopes
16	Bashaw silty clay loam, nonflooded, 0 to 3 percent slopes
17	Bellpine-Jory complex, 2 to 12 percent slopes
18	Bellpine-Jory complex, 12 to 20 percent slopes
19	Bellpine-Jory complex, 20 to 30 percent slopes
20	Bellpine-Jory complex, 30 to 60 percent slopes
21	Blachly-Kilowan complex, 5 to 30 percent slopes
22	Blachly-Kilowan complex, 30 to 60 percent slopes
23	Bohannon-Preacher complex, 30 to 60 percent slopes
24	Bohannon-Preacher complex, 60 to 90 percent slopes
25	Briedwell gravelly loam, 0 to 7 percent slopes
26	Briedwell gravelly loam, 7 to 20 percent slopes
27	Burntwoods-Oldblue complex, 30 to 60 percent slopes
28	Camas gravelly sandy loam, 0 to 3 percent slopes
29	Camas gravelly sandy loam, relict bar, 0 to 3 percent slopes
30	Caterl-Laderly-Romanose complex, 30 to 60 percent slopes
31	Caterl-Laderly-Romanose complex, 60 to 90 percent slopes
32	Caterl-Murtip-Giveout complex, 30 to 60 percent slopes
33	Caterl-Murtip-Laderly complex, 30 to 60 percent slopes
34	Chapman loam, 0 to 3 percent slopes
35	Chapman loam, high precipitation, 0 to 3 percent slopes
36	Chehalem silty clay loam, 0 to 3 percent slopes
37	Chehalem silty clay loam, 3 to 12 percent slopes
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39	Chehalis silt loam, high precipitation, 0 to 3 percent slopes
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45	Chismore-Pyburn complex, 3 to 12 percent slopes
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50	Coburg silty clay loam, rarely flooded, 0 to 3 percent slopes
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52	Conser silty clay loam, 0 to 3 percent slopes
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54	Dayton silt loam, clay substratum, 0 to 2 percent slopes
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56	Digger-Remote-Umpcoos complex, 30 to 60 percent slopes
57	Digger-Umpcoos-Remote complex, 60 to 90 percent slopes
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59	Dixonville-Gellatly complex, 30 to 60 percent slopes
60	Dixonville-Gellatly-Witham complex, 2 to 12 percent slopes
61	Dupee silt loam, 3 to 12 percent slopes
62	Dupee silt loam, 12 to 20 percent slopes
63	Elsie silt loam, 0 to 7 percent slopes
64	Elsie silt loam, 7 to 15 percent slopes
65	Fiverivers-Grassmountain-Chintimini complex, 30 to 60 percent slopes
66	Fluvents-Fluvaquents complex, 0 to 2 percent slopes
67	Fluvents-Fluvaquents complex, high precipitation, 0 to 3 percent slopes
68	Formader-Hemcross complex, 3 to 35 percent slopes
69	Formader-Hemcross complex, 35 to 60 percent slopes
70	Formader-Klistan-Hemcross complex, 60 to 80 percent slopes
71	Gelderman-Jory complex, 2 to 12 percent slopes
72	Goodin-Dupee-Chehulpum complex, 2 to 12 percent slopes
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78	Hazelair silty clay loam, 12 to 20 percent slopes
79	Hazelair silty clay loam, 20 to 30 percent slopes
80	Hazelair silty clay loam, 7 to 20 percent slopes
81	Helmick silt loam, 3 to 12 percent slopes
82	Helvetia silt loam, 2 to 7 percent slopes
83	Hemcross-Klistan complex, 5 to 30 percent slopes
84	Hemcross-Klistan complex, 30 to 60 percent slopes
85	Holcomb silt loam, 0 to 3 percent slopes
86	Honeygrove-Peavine complex, 3 to 30 percent slopes
87	Honeygrove-Peavine complex, 30 to 60 percent slopes
88	Honeygrove-Peavine complex, basalts, 3 to 30 percent slopes
89	Honeygrove-Peavine complex, basalts, 30 to 60 percent slopes
90	Honeygrove-Shivigny complex, 3 to 30 percent slopes
91	Jory silty clay loam, basalt bedrock, 2 to 12 percent slopes
92	Jory silty clay loam, basalt bedrock, 12 to 20 percent slopes
93	Jory silty clay loam, basalt bedrock, 20 to 30 percent slopes
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95	Jory silty clay loam, sedimentary bedrock, 12 to 20 percent slopes
96	Jory silty clay loam, sedimentary bedrock, 20 to 30 percent slopes
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98	Jory-Gelderman complex, 12 to 30 percent slopes
99	Jory-Nekia complex, 12 to 20 percent slopes
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105	Linslaw loam, 0 to 3 percent slopes
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107	Lurnick-Luckiamute complex, 60 to 90 percent slopes
108	Lurnick-Luckiamute-Maryspeak complex, 30 to 60 percent slopes
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111	Malabon silty clay loam, rarely flooded, 0 to 3 percent slopes
112	Maryspeak gravelly medial sandy loam, 5 to 30 percent slopes
113	McAlpin silty clay loam, 0 to 3 percent slopes
114	McAlpin silty clay loam, 3 to 6 percent slopes
115	McAlpin silty clay loam, high precipitation, 0 to 3 percent slopes
116	McAlpin silty clay loam, high precipitation, 3 to 6 percent slopes
117	McAlpin silty clay loam, rarely flooded, 0 to 3 percent slopes
118	McBee silty clay loam, 0 to 3 percent slopes
119	McBee silty clay loam, nonflooded, 0 to 3 percent slopes
120	Meda-Treharne-Wasson complex, 0 to 20 percent slopes
121	Mulkey medial loam, 3 to 30 percent slopes
122	Mulkey medial loam, 30 to 60 percent slopes
123	Murtip-Giveout-Laderly complex, 5 to 30 percent slopes
124	Nekoma-Fluvaquents complex, 0 to 3 percent slopes
125	Newberg fine sandy loam, 0 to 3 percent slopes
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127	Newberg loam, 0 to 3 percent slopes
128	Oldblue-Burntwoods complex, 5 to 30 percent slopes
129	Panther silty clay loam, 2 to 12 percent slopes
130	Pengra silt loam, 2 to 12 percent slopes
131	Philomath silty clay loam, 3 to 12 percent slopes
132	Pilchuck fine sandy loam, 0 to 3 percent slopes
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134	Preacher-Blachly-Bohannon complex, 5 to 30 percent slopes
135	Preacher-Bohannon complex, 5 to 35 percent slopes
136	Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes
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139	Salem gravelly silt loam, 0 to 3 percent slopes
140	Santiam silt loam, 2 to 8 percent slopes
141	Santiam silt loam, 8 to 20 percent slopes
142	Sevencedars-Newanna complex, 60 to 90 percent slopes
143	Sevencedars-Newanna-Woodspoint complex, 5 to 30 percent slopes
144	Sevencedars-Newanna-Woodspoint complex, 30 to 60 percent slopes
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146	Slickrock gravelly medial loam, 3 to 25 percent slopes
147	Steiwer-Chehulpum complex, 3 to 12 percent slopes
148	Steiwer-Chehulpum complex, 12 to 30 percent slopes
149	Steiwer-Chehulpum complex, 30 to 60 percent slopes
150	Treharne-Eilertsen-Zyzzug complex, 0 to 7 percent slopes
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152	Valsetz-Yellowstone complex, 30 to 60 percent slopes
153	Valsetz-Yellowstone complex, 60 to 90 percent slopes
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155	Waldo silty clay loam, 0 to 3 percent slopes
156	Waldo silty clay loam, high precipitation, 0 to 3 percent slopes
157	Wapato silty clay loam, 0 to 3 percent slopes
158	Wapato silty clay loam, high precipitation, 0 to 3 percent slopes
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160	Wellsdale-Willakenzie complex, 20 to 30 percent north slopes
161	Wellsdale-Willakenzie-Dupee complex, 2 to 12 percent slopes
162	Wellsdale-Willakenzie-Dupee complex, 12 to 20 percent north slopes
163	Willakenzie loam, 2 to 12 percent slopes
164	Willakenzie loam, 12 to 20 percent slopes
165	Willakenzie loam, 20 to 30 percent slopes
166	Willakenzie loam, 30 to 60 percent slopes
167	Willakenzie-Wellsdale complex, 12 to 20 percent south slopes
168	Willakenzie-Wellsdale complex, 20 to 30 percent south slopes
169	Willamette silt loam, 0 to 3 percent slopes
170	Willamette silt loam, 3 to 12 percent slopes
171	Willamette silt loam, 12 to 20 percent slopes
172	Witham silty clay loam, 2 to 12 percent slopes
173	Witham silty clay loam, 12 to 20 percent slopes
174	Witzel-Ritner complex, 3 to 12 percent slopes
175	Witzel-Ritner complex, 12 to 30 percent slopes
176	Witzel-Ritner complex, 30 to 60 percent slopes
177	Woodburn silt loam, 0 to 3 percent slopes
178	Woodburn silt loam, 3 to 12 percent slopes
179	Woodburn silt loam, 12 to 20 percent slopes
180	Woodburn silt loam, 20 to 55 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES
- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline and neatline
- Previously published survey

OTHER BOUNDARY
- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION
- Divided roads
- Other roads
- Trail

ROAD EMBLEMS AND DESIGNATIONS
- Interstate — 173, 79 345
- Federal — 287, 410 224
- State — 52, 52 347
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE

PIPELINE

FENCE

LEVEES
- Without road
- With road
- With railroad
- Single side slope

DAMS
- Medium or small

LANDFORM FEATURES
- Prominent hill or peak

MISCELLANEOUS CULTURAL FEATURES
- Farmstead, house
- Church
- School
- Other religion — Mt Carmel
- Located object — Ranger Station
- Tank — Petroleum
- Lookout tower
- Oil and/or natural gas wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS
- Perennial stream, double line
- Perennial stream, single line — Label only
- Intermittent stream — Label only
- Drainage end — Label only

DRAINAGE AND IRRIGATION
- Double-line canal — CANAL
- Perennial drainage and/or irrigation ditch — Label only
- Intermittent drainage and/or irrigation ditch — Label only

SMALL LAKES, PONDS, AND RESERVOIRS
- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

MISCELLANEOUS WATER FEATURES
- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — 1 63

LANDFORM FEATURES
- Bedrock escarpment
- Other than bedrock escarpment
- Short steep slope
- Gully
- Depression, closed
- Sinkhole
- Borrow pit
- Gravel pit
- Mine or quarry
- Landfill

MISCELLANEOUS SURFACE FEATURES
- Blowout
- Clay spot
- Gravelly spot
- Lava spot
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

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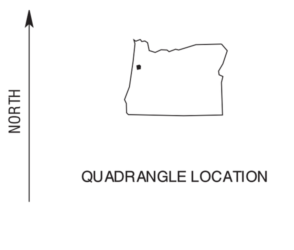

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	■	2
	6	7

2 KINGS VALLEY
6 MARYS PEAK
7 WREN

INDEX TO ADJOINING 7.5 MAPS

SUMMIT, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
KINGS VALLEY QUADRANGLE
SHEET NUMBER 2 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

1		3
6	7	8

1 SUMMIT
3 AIRLIE SOUTH
6 MARYS PEAK
7 WREN
8 CORVALLIS

INDEX TO ADJOINING 7.5 MAPS

KINGS VALLEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 20

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
AIRLIE SOUTH QUADRANGLE
SHEET NUMBER 3 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

2		4
7	8	9

2 KINGS VALLEY
4 LEWISBURG
7 WREN
8 CORVALLIS
9 RIVERSIDE

INDEX TO ADJOINING 7.5 MAPS

AIRLIE SOUTH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 20

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
LEWISBURG QUADRANGLE
SHEET NUMBER 4 OF 20

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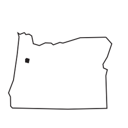
NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

3		5
8	9	

3 AIRLIE SOUTH
5 ALBANY
8 CORVALLIS
9 RIVERSIDE

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LEWISBURG, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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4 LEWISBURG
9 RIVERSIDE

ALBANY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 20

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
MARYS PEAK QUADRANGLE
SHEET NUMBER 6 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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1 SUMMIT
2 KINGS VALLEY
7 WREN
10 GRASS MOUNTAIN
11 ALSEA
12 FLAT MOUNTAIN

MARYS PEAK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 20

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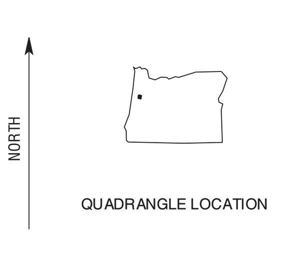

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

1	2	3
6		8
11	12	13

1 SUMMIT
2 KINGS VALLEY
3 AIRLIE SOUTH
6 MARYS PEAK
8 CORVALLIS
11 ALSEA
12 FLAT MOUNTAIN
13 GREENBERRY

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WREN, OREGON
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UNITED STATES
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BENTON COUNTY, OREGON
CORVALLIS QUADRANGLE
SHEET NUMBER 8 OF 20

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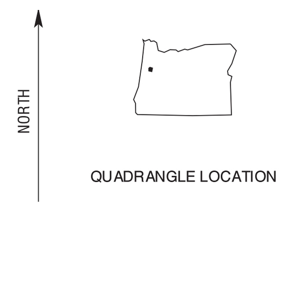
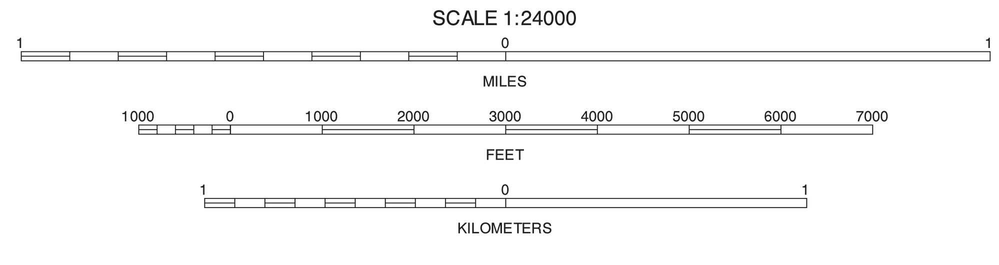


QUADRANGLE LOCATION



2	3	4	2 KINGS VALLEY 3 AIRLIE SOUTH 4 LEWISBURG
7		9	7 WREN 9 RIVERSIDE
12	13	14	12 FLAT MOUNTAIN 13 GREENBERRY 14 PEORIA

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CORVALLIS, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 8 OF 20

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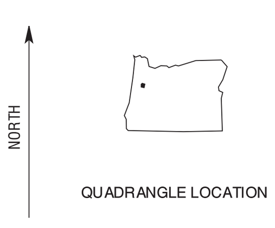

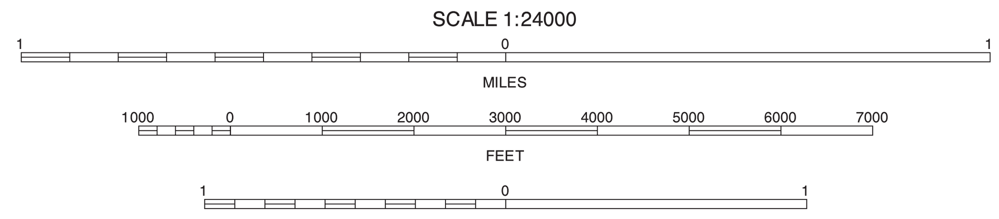

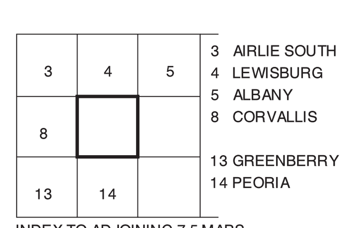

RIVERSIDE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 20

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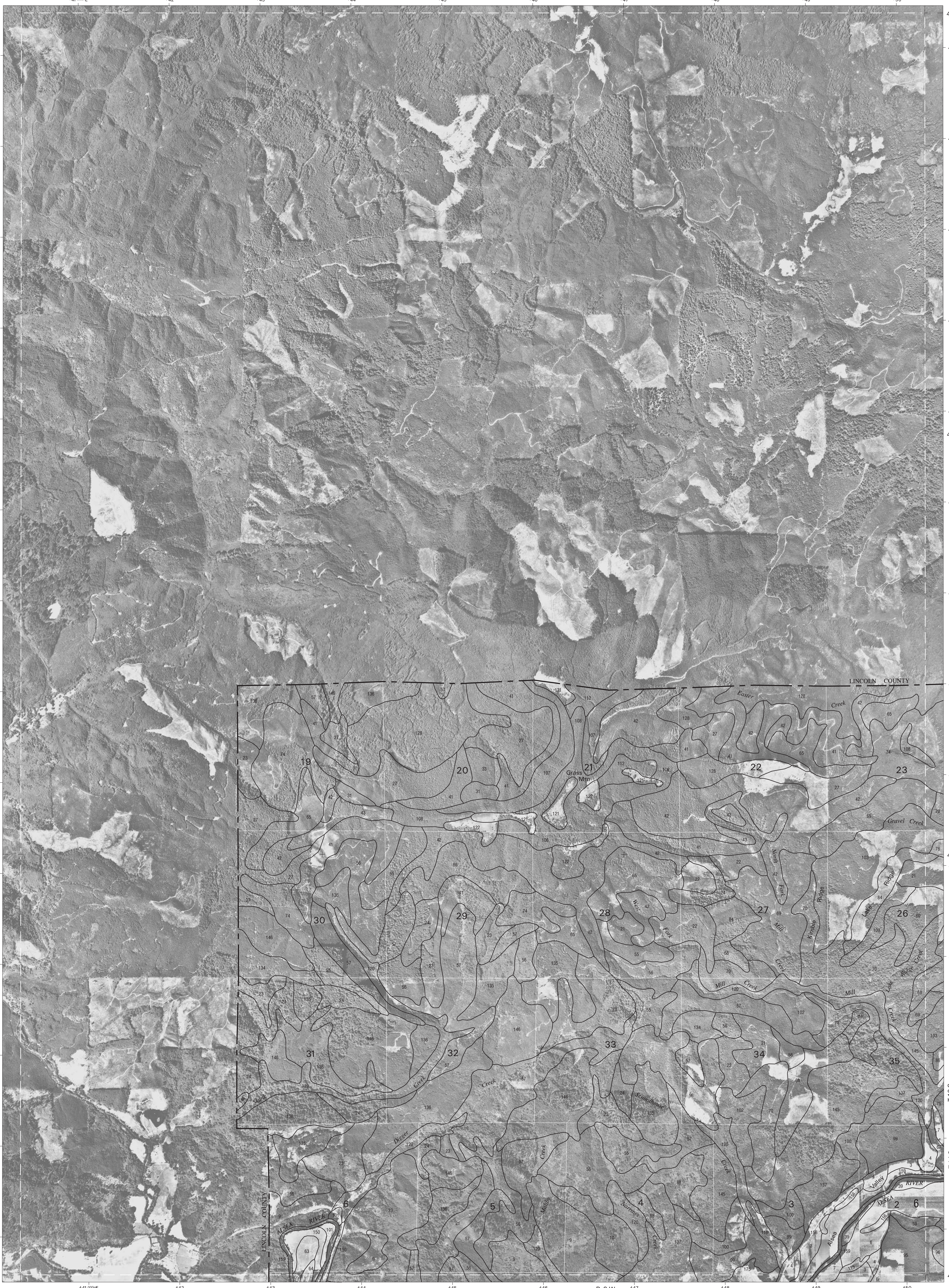
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
GRASS MOUNTAIN QUADRANGLE
SHEET NUMBER 10 OF 20



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

6 MARYS PEAK
11 ALSEA
15 FIVE RIVERS
16 DIGGER MOUNTAIN
17 PRAIRIE PEAK

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GRASS MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 10 OF 20

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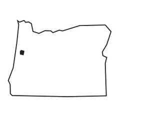
NORTH



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	6	7
10		12
16	17	18

6 MARYS PEAK
7 WREN
10 GRASS MOUNTAIN
12 FLAT MOUNTAIN
16 DIGGER MOUNTAIN
17 PRAIRIE PEAK
18 GLENBROOK

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ALSEA, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 11 OF 20

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
FLAT MOUNTAIN QUADRANGLE
SHEET NUMBER 12 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

6	7	8
11		13
17	18	19

6 MARYS PEAK
7 WREN
8 CORVALLIS
11 ALSEA
13 GREENBERRY
17 PRAIRIE PEAK
18 GLENBROOK
19 MONROE

INDEX TO ADJOINING 7.5 MAPS

FLAT MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

7	8	9
12		14
18	19	20

7 WREN
8 CORVALLIS
9 RIVERSIDE
12 FLAT MOUNTAIN
14 PEORIA
18 GLENBROOK
19 MONROE
20 HARRISBURG

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GREENBERRY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 20

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NATURAL RESOURCES CONSERVATION SERVICE

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

8	9	
13		
19	20	

8 CORVALLIS
9 RIVERSIDE
13 GREENBERRY
19 MONROE
20 HARRISBURG

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PEORIA, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 20

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
FIVE RIVERS QUADRANGLE
SHEET NUMBER 15 OF 20

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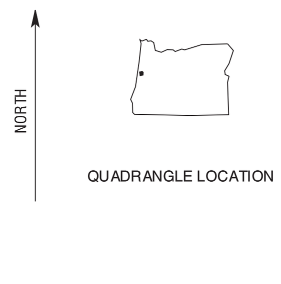
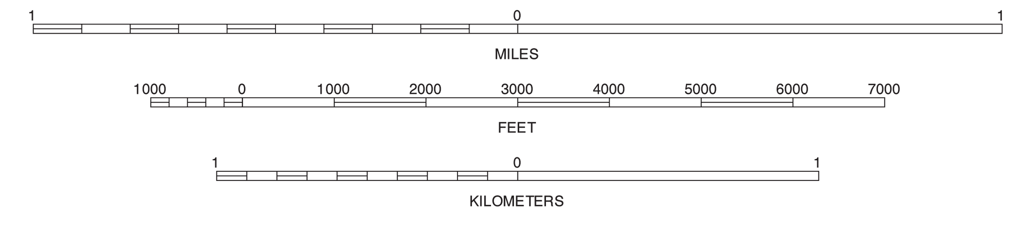
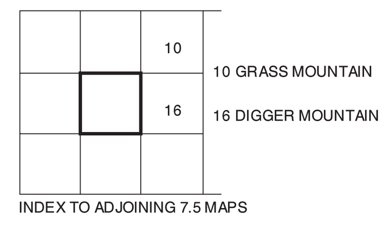


QUADRANGLE LOCATION

SCALE 1:24000





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FIVE RIVERS, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 15 OF 20

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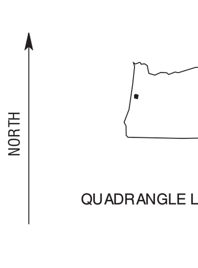


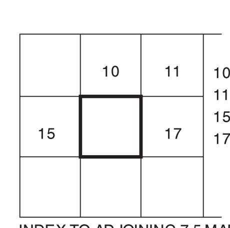
QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 — 0 — 1

FEET: 1000 — 0 — 1000 — 2000 — 3000 — 4000 — 5000 — 6000 — 7000

KILOMETERS: 1 — 0 — 1



10 GRASS MOUNTAIN
11 ALSEA
15 FIVE RIVERS
17 PRAIRIE PEAK

INDEX TO ADJOINING 7.5 MAPS

DIGGER MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 16 OF 20

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
PRAIRIE PEAK QUADRANGLE
SHEET NUMBER 17 OF 20

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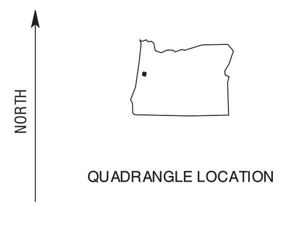

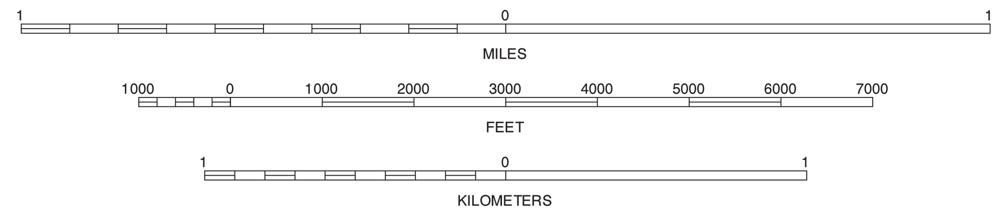

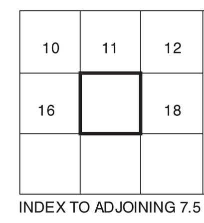

PRAIRIE PEAK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
GLENBROOK QUADRANGLE
SHEET NUMBER 18 OF 20

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1994-2000 aerial photography. Cultural layers were derived from the USGS. The public land survey and administrative boundaries were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

11	12	13
17		19

11 ALSEA
12 FLAT MOUNTAIN
13 GREENBERRY
17 PRAIRIE PEAK
19 MONROE

INDEX TO ADJOINING 7.5 MAPS

GLENBROOK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 20

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BENTON COUNTY, OREGON
MONROE QUADRANGLE
SHEET NUMBER 19 OF 20

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

12 FLAT MOUNTAIN
13 GREENBERRY
14 PEORIA
18 GLENBROOK
20 HARRISBURG

INDEX TO ADJOINING 7.5 MAPS

MONROE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 20

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BENTON COUNTY, OREGON
HARRISBURG QUADRANGLE
SHEET NUMBER 20 OF 20

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 10.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

13	14	
19		

13 GREENBERRY
14 PEORIA
19 MONROE

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HARRISBURG, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 20

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